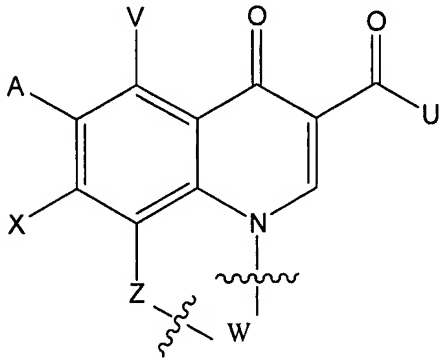
AMENDMENTS TO THE CLAIMS

1. (previously presented): A compound having formula 1, or pharmaceutically acceptable salts thereof



(1)

and pharmaceutically acceptable salts, esters and prodrugs thereof;

wherein V is H, halo, NR^1R^2 or $NR^1 - (CR^1_2)_n - NR^3R^4$;

A is H, fluoro, or NR^1_2;

Z is O;

U is selected from the group consisting of $NR^1 - (CR^1_2)_n - NR^3R^4$ or NR^1R;

X is OR^2, NR^1R^2, halo, azido, or SR^2;

n is 1-6;

wherein R^1 and R^2 together with N in NR^1R^2 and R^3 and R^4 together with N in NR^3R^4 may independently form an optionally substituted 5-6 membered ring containing N, and optionally O or S;

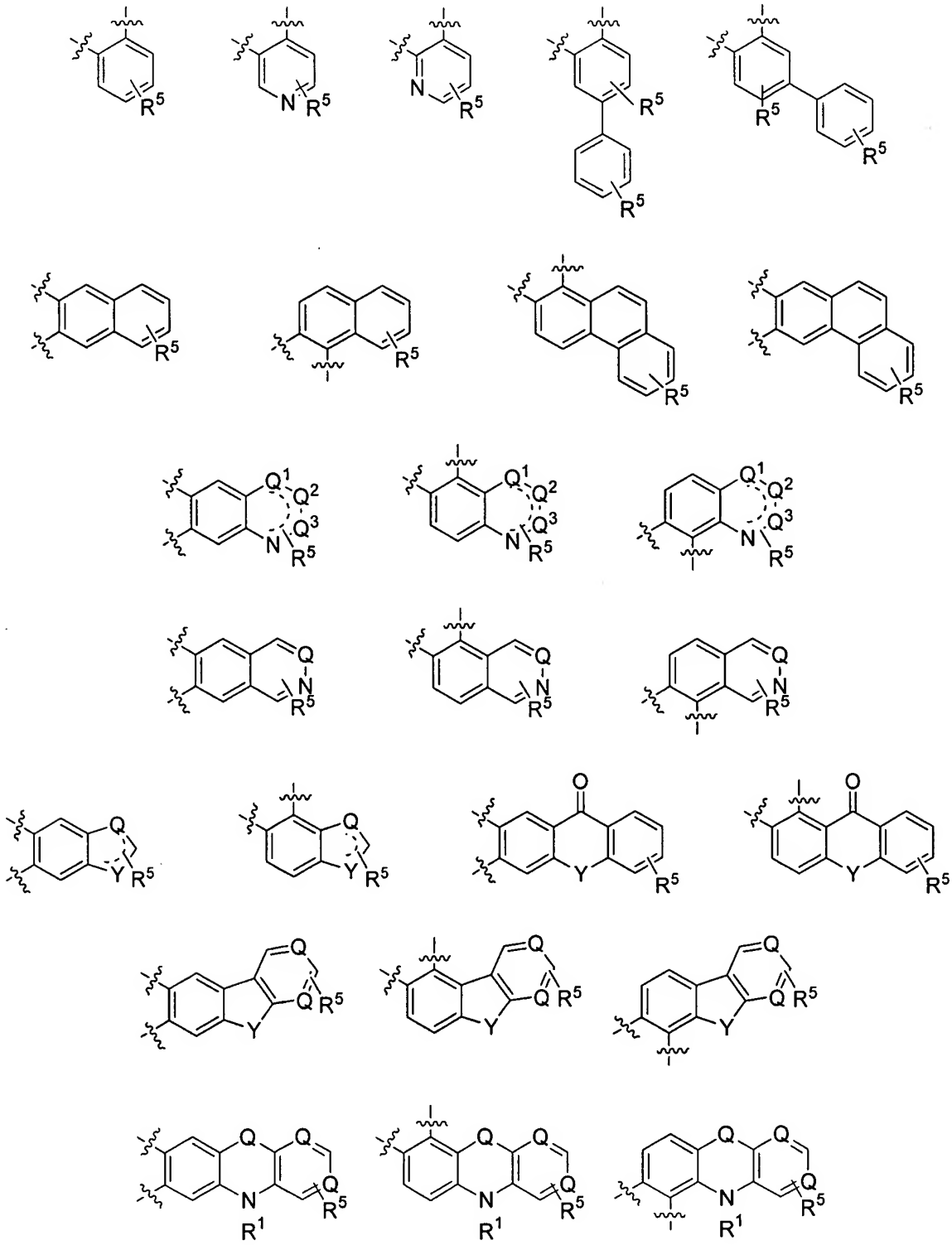
R is an optionally substituted 5-14 membered heterocyclic ring containing one or more N, O or S; or a C_{1-10} alkyl or C_{2-10} alkenyl optionally containing one or more non-adjacent heteroatoms selected from N, O, and S, and optionally substituted with a carbocyclic or heterocyclic ring;

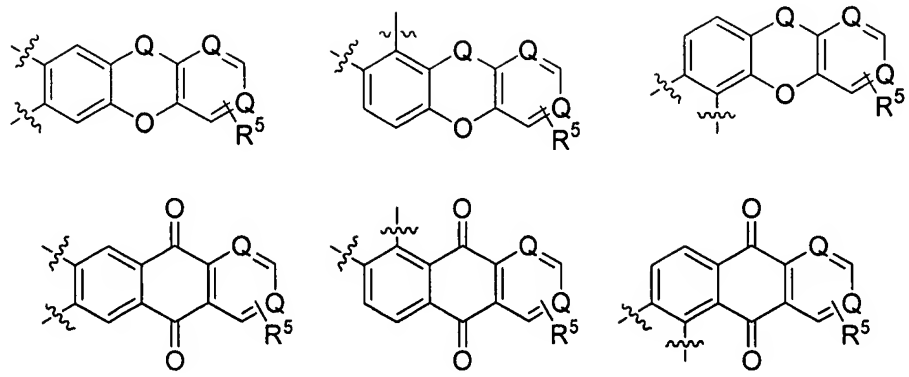
R^1 and R^3 are independently H or a C_{1-6} alkyl;

R^2 and R^4 are independently H or a C_{1-10} alkyl or C_{2-10} alkenyl optionally containing one or more non-adjacent heteroatoms selected from N, O, and S, and optionally substituted with a carbocyclic or heterocyclic ring; or

R^2 is an optionally substituted heterocyclic ring, aryl or heteroaryl;

W is selected from the group consisting of





wherein Q, Q^1, Q^2, and Q^3 are independently CH or N;

Y is independently O, CH, C=O or NR^1;

and R^5 is a substituent at any position on the fused ring; and is H, OR^2, C_{1-6} alkyl, C_{2-6} alkenyl, each optionally substituted by halo, or =O; or two adjacent R^5 is linked to obtain a 5-6 membered substituted or unsubstituted carbocyclic or heterocyclic ring, optionally fused to an additional substituted or unsubstituted carbocyclic or heterocyclic ring;

wherein each optionally substituted moiety is substituted with one or more halo, OR^2, NR^1R^2, carbamate, C_{1-10} alkyl, C_{2-10} alkenyl, each optionally substituted by halo, =O, aryl or one or more heteroatoms selected from N, O and S; or is substituted with an aryl, a carbocyclic or a heterocyclic ring.

2. (original): The compound of claim 1, wherein A and X are independently halo.

3. (original): The compound of claim 2, wherein said halo is fluoro.

4. (original): The compound of claim 1, where V is H.

5. (previously presented): The compound of claim 1, wherein X is NR^1R^2.

6. (previously presented): The compound of claim 5, wherein R^1 is H and R^2 is a C_{1-10} alkyl optionally containing N, O or S, and optionally substituted with a C_{3-6} cycloalkyl, aryl or a 5-14 membered heterocyclic ring containing one or more N, O or S.

7. (original): The compound of claim 6, wherein said 5-14 membered heterocyclic ring is selected from the group consisting of tetrahydrofuran, 1,3-dioxolane, 2,3-dihydrofuran, tetrahydropyran, benzofuran, isobenzofuran, 1,3-dihydro-isobenzofuran, isoxazole, 4,5-dihydroisoxazole, piperidine, pyrrolidine, pyrrolidin-2-one, pyrrole, pyridine, pyrimidine, octahydro-pyrrolo[3,4-*b*]pyridine, piperazine, pyrazine, morpholine, thiomorpholine, imidazole, imidazolidine-2,4-dione, benzimidazole, 1,3-dihydrobenzimidazol-2-one, indole, thiazole, benzothiazole, thiadiazole, thiophene, tetrahydro-thiophene 1,1-dioxide, diazepine, triazole, guanidine, diazabicyclo[2.2.1]heptane, 2,5-diazabicyclo[2.2.1]heptane, and 2,3,4,4a,9,9a-hexahydro-1H-β-carboline.

8. (original): The compound of claim 5, wherein R^1 is H and R^2 is an aryl or a 5-14 membered heterocyclic ring containing one or more N, O or S, each optionally substituted with an amino or another heterocyclic ring.

9. (original): The compound of claim 8, wherein said 5-14 membered heterocyclic ring is selected from the group consisting of tetrahydrofuran, 1,3-dioxolane, 2,3-dihydrofuran, tetrahydropyran, benzofuran, isobenzofuran, 1,3-dihydro-isobenzofuran, isoxazole, 4,5-dihydroisoxazole, piperidine, pyrrolidine, pyrrolidin-2-one, pyrrole, pyridine, pyrimidine, octahydro-pyrrolo[3,4-b]pyridine, piperazine, pyrazine, morpholine, thiomorpholine, imidazole, imidazolidine-2,4-dione, benzimidazole, 1,3-dihydrobenzimidazol-2-one, indole, thiazole, benzothiazole, thiadiazole, thiophene, tetrahydro-thiophene 1,1-dioxide, diazepine, triazole, guanidine, diazabicyclo[2.2.1]heptane, 2,5-diazabicyclo[2.2.1]heptane, and 2,3,4,4a,9,9a-hexahydro-1H-β-carboline.

10. (previously presented): The compound of claim 5, wherein R^1 and R^2 together with N in NR^1R^2 form an optionally substituted 5-6 membered ring containing one or more N, O or S.

11. (previously presented): The compound of claim 10, where NR^1R^2 is pyrrolidine, imidazole, pyridine, morpholine, thiomorpholine, piperazine, piperidine or diazepine.

12. (canceled)

13. (previously presented): The compound of claim 1, wherein n is 2-3.

14. (previously presented): The compound of claim 1, wherein NR^3R^4 is an acyclic amine, or guanidinyl or a tautomer thereof.

15. (previously presented): The compound of claim 1, wherein NR^3R^4 is morpholine, thiomorpholine, imidazole, pyrrolidine, piperazine, pyridine or piperidine.

16. (previously presented): The compound of claim 1, wherein U is

$$NR^1 - (CR^1{}_2)_n - NR^3R^4.$$

17. (previously presented): The compound of claim 16, wherein X is NR^1R^2, and R^1 and R^2 together with N in NR^1R^2, and R^3 and R^4 together with N in NR^3R^4 each independently form a substituted 5-6 membered ring containing one or more N, O or S.

18. (original): The compound of claim 17, wherein X is optionally substituted with amino, carbamate, a $C_{1\text{-}10}$ alkyl containing one or more non-adjacent N, O or S, and optionally substituted with a heterocyclic ring; aryl or a saturated or unsaturated heterocyclic ring, each of which is optionally substituted.

19. (original): The compound of claim 17, wherein X is substituted with a heterocyclic ring selected from the group consisting of tetrahydrofuran, 1,3-dioxolane, 2,3-dihydrofuran, tetrahydropyran, benzofuran, isobenzofuran, 1,3-dihydro-isobenzofuran, isoxazole, 4,5-dihydroisoxazole, piperidine, pyrrolidine, pyrrolidin-2-one, pyrrole, pyridine, pyrimidine, octahydro-pyrrolo[3,4-*b*]pyridine, piperazine, pyrazine, morpholine, thiomorpholine, imidazole, imidazolidine-2,4-dione, benzimidazole, 1,3-dihydrobenzimidazol-2-one, indole, thiazole, benzothiazole, thiadiazole, thiophene, tetrahydro-thiophene 1,1-dioxide, diazepine, triazole, guanidine, diazabicyclo[2.2.1]heptane, 2,5-diazabicyclo[2.2.1]heptane, and 2,3,4,4a,9,9a-hexahydro-1H-β-carboline.

20. (original): The compound of claim 17, wherein X and NR^3R^4 are independently morpholine, thiomorpholine, imidazole, pyrrolidine, piperazine, pyridine or piperidine.

21. (original): The compound of claim 20, wherein X and NR^3R^4 are independently pyrrolidine.

22. (original): The compound of claim 21, wherein X is substituted with pyrazine.

23. (original): The compound of claim 22, wherein W is naphthalenyl.

24. (original): The compound of claim 1, wherein W is benzene, pyridine, biphenyl, naphthalene, phenanthrene, quinoline, isoquinoline, quinazoline, cinnoline, phthalazine, quinoxaline, indole, benzimidazole, benzoxazole, benzthiazole, benzofuran, anthrone, xanthone, acridone, fluorenone, carbazolyl, pyrimido[4,3-*b*]furan, pyrido[4,3-*b*]indole, pyrido[2,3-*b*]indole, dibenzofuran, acridine or acridizine.

25-26. (canceled)

27. (original): The compound of claim 1, wherein said compound is chiral.

28. (original): A pharmaceutical composition comprising the compound of claim 1 and a pharmaceutically acceptable excipient.

29-40. (canceled)

41. (previously presented): The compound of claim 1, wherein V is H or NH_2.

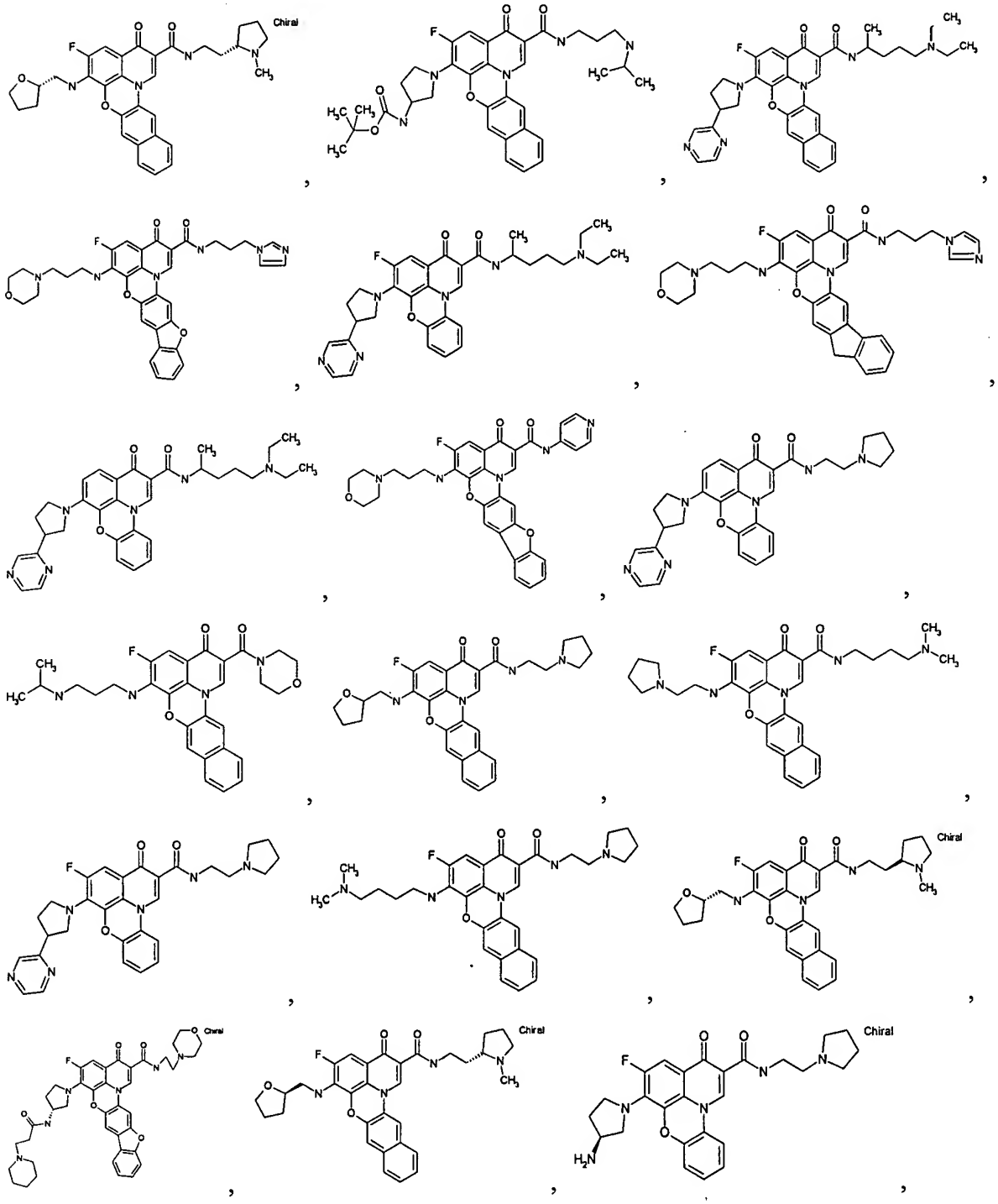
42. (original): The compound of claim 16, wherein V is H.

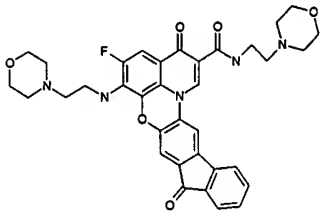
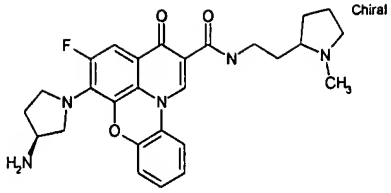
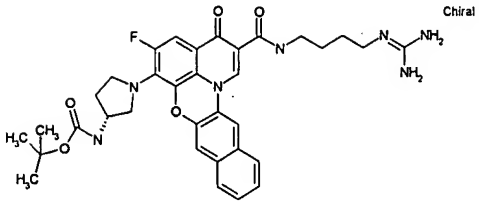
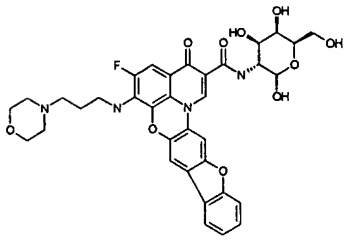
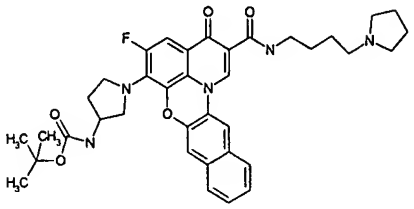
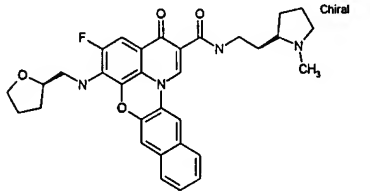
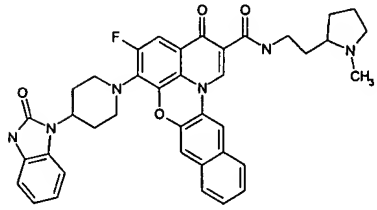
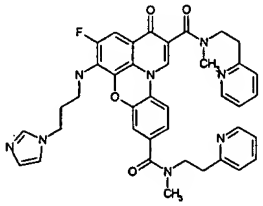
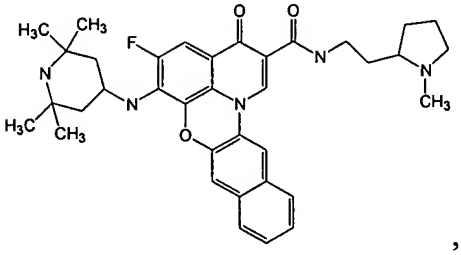
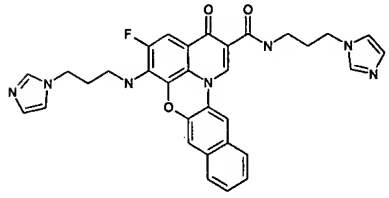
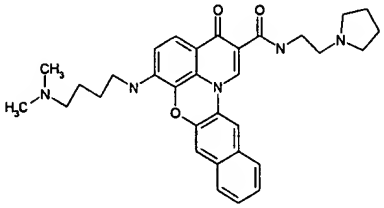
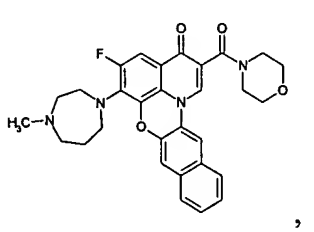
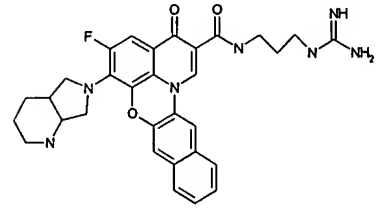
43. (original): The compound of claim 16, wherein A is fluoro.

44. (original): The compound of claim 16, wherein W is naphthalenyl.

45. (original): The compound of claim 23, wherein V is H and A is fluoro.

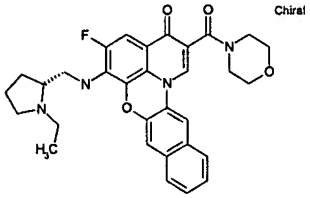
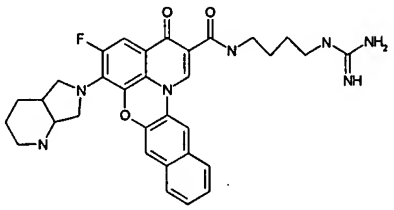
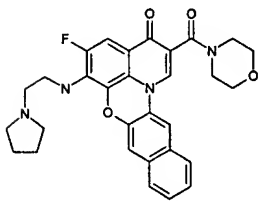
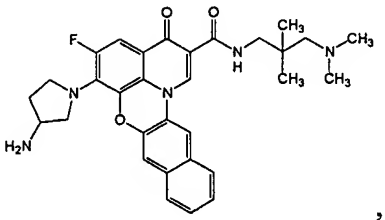
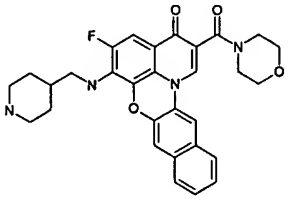
46. (previously presented): A compound selected from the group consisting of

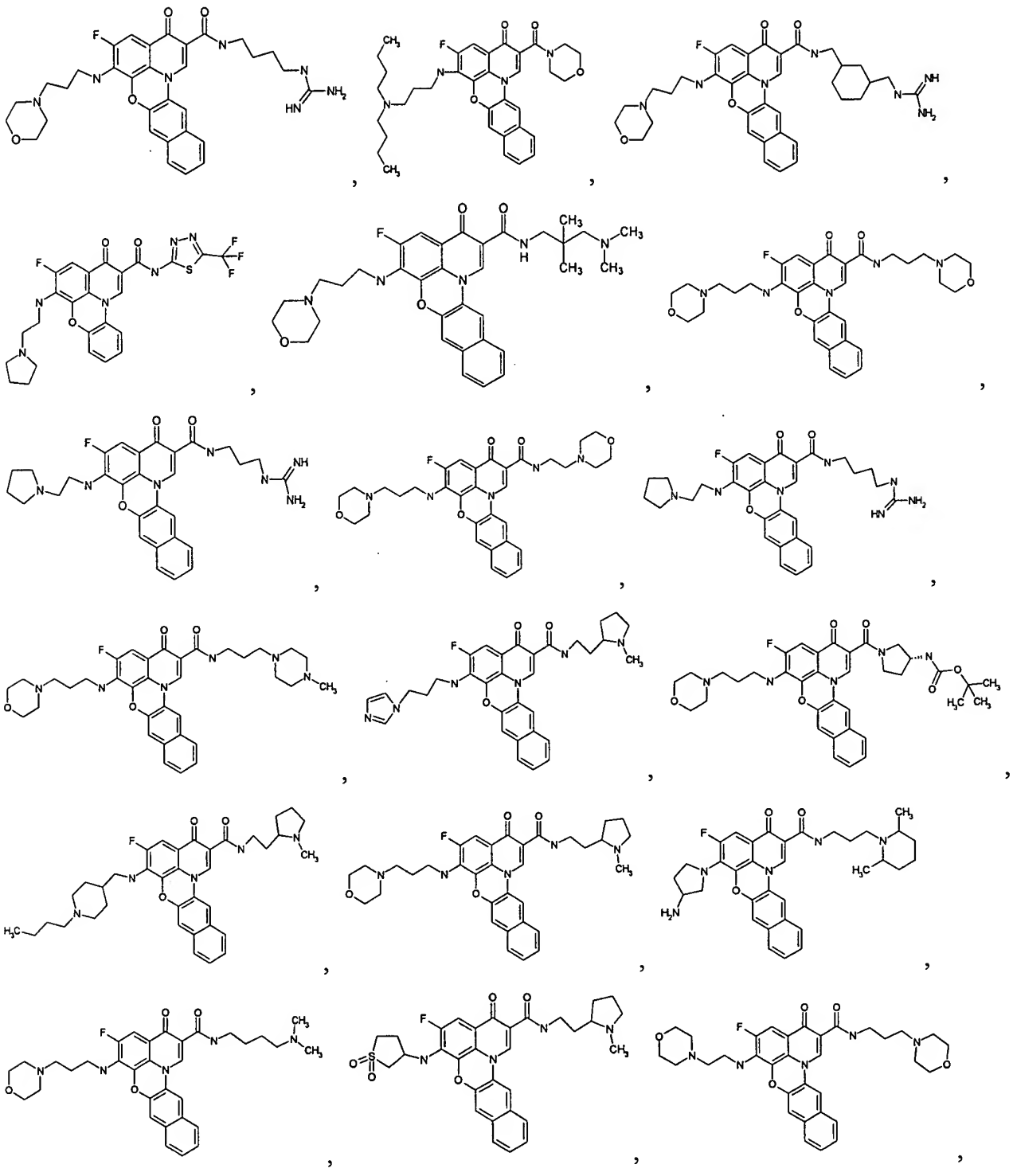


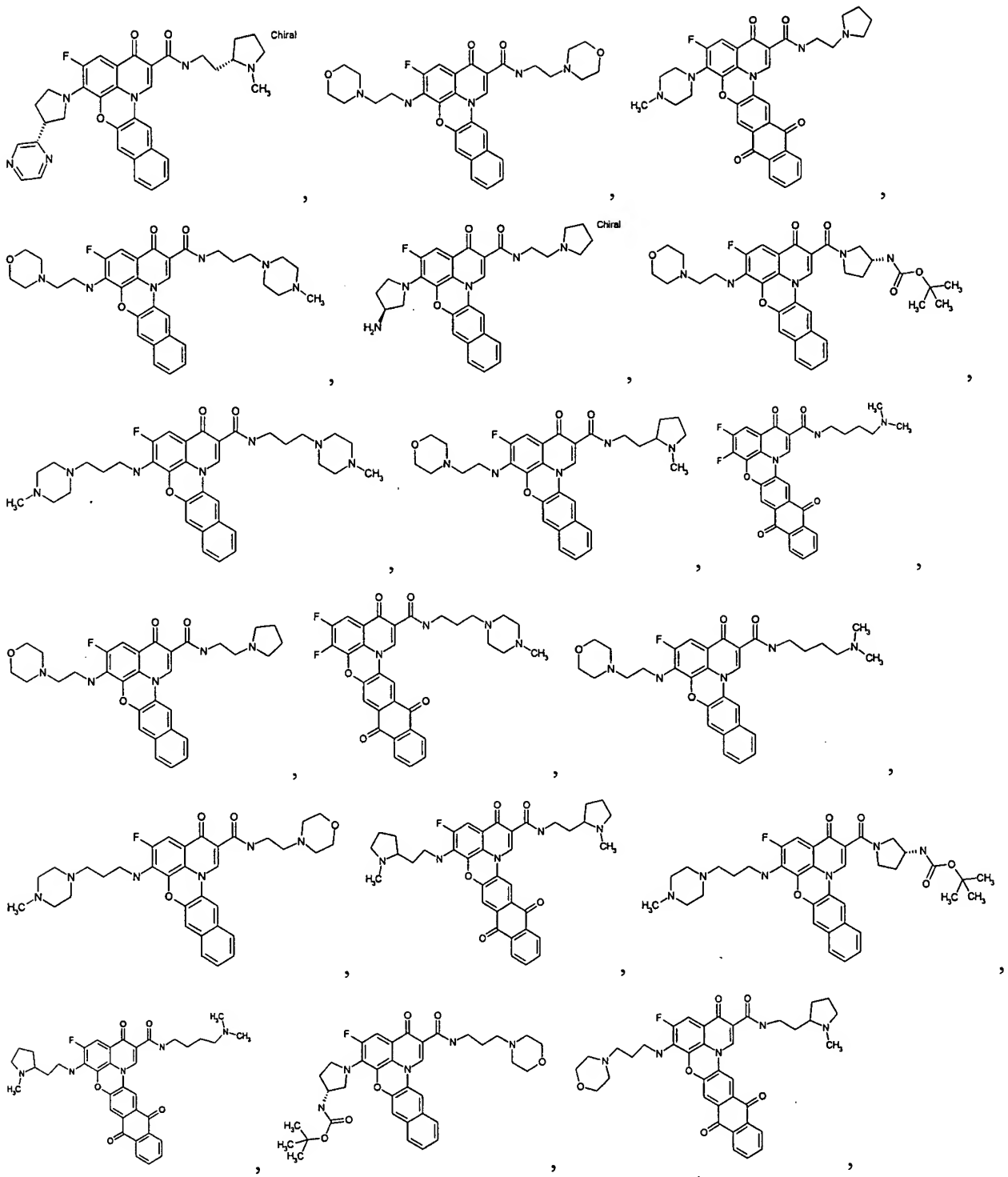

,

Chiral
,

Chiral
,

,

,

Chiral
,

,

,

,

,

,

,

,

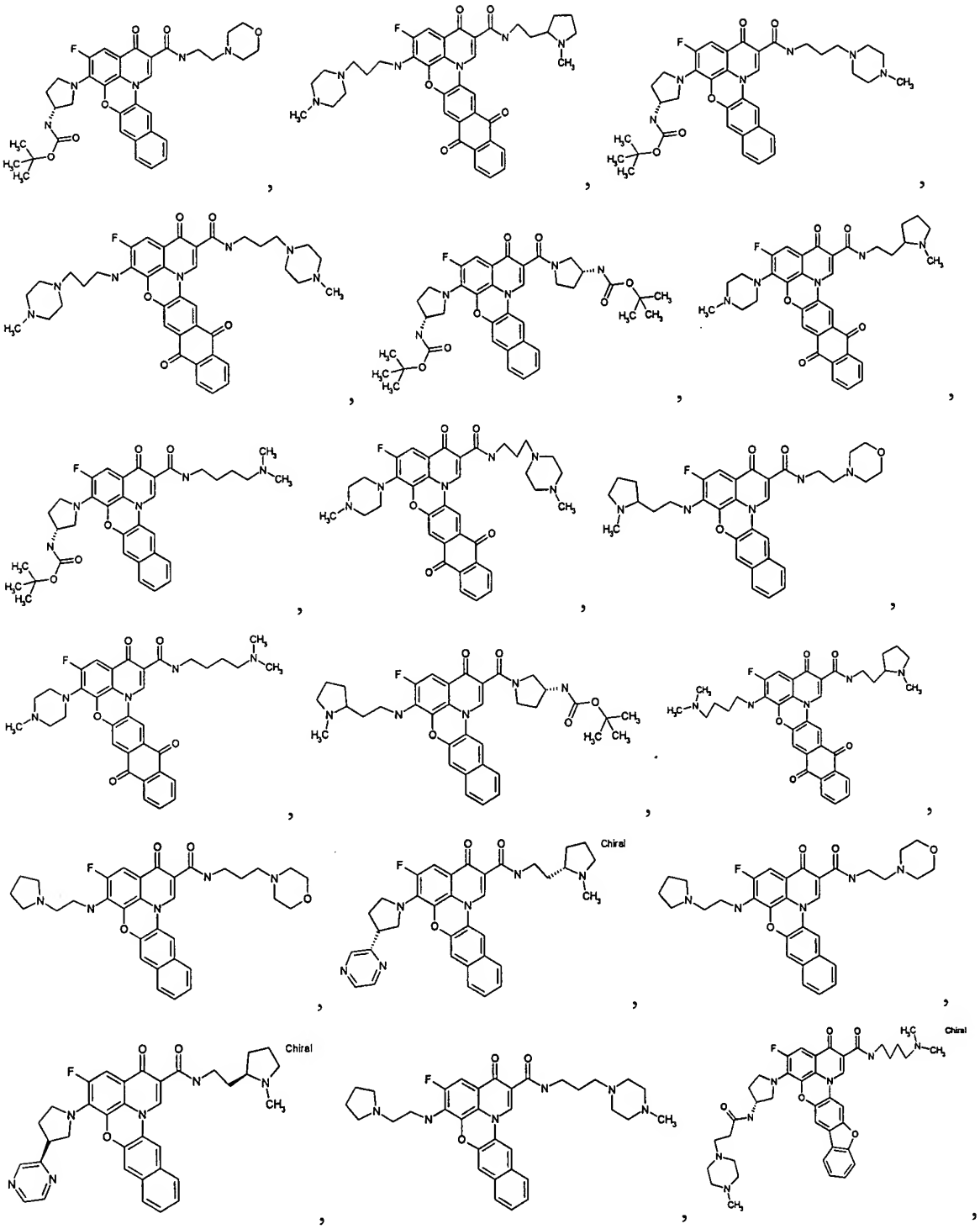
,

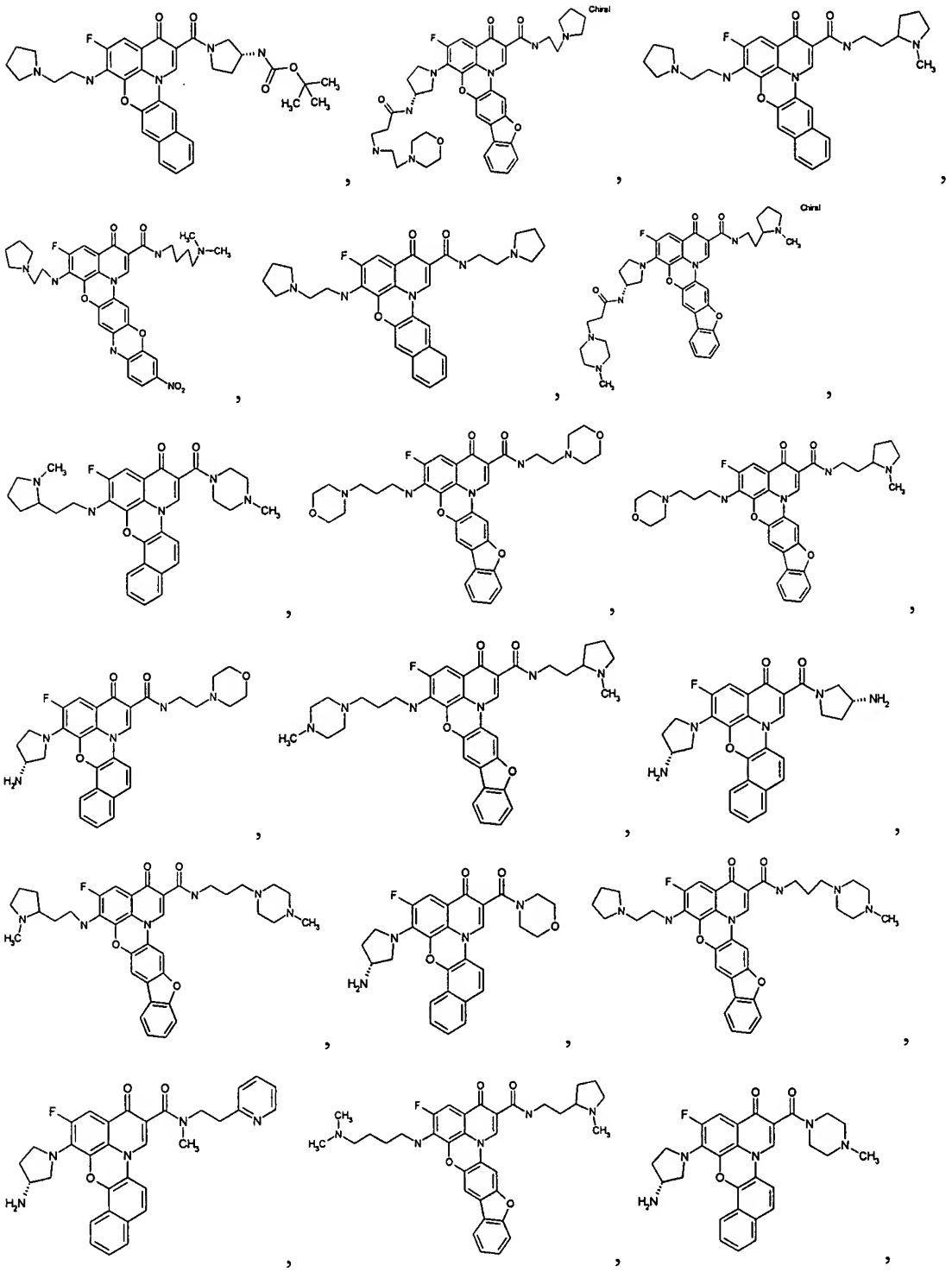
,

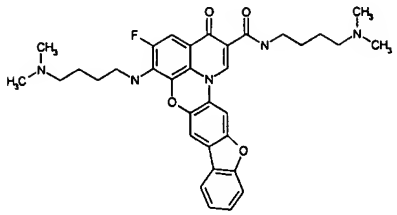
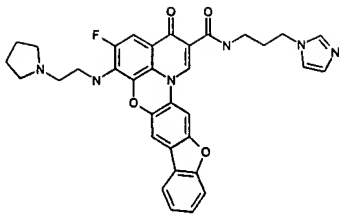
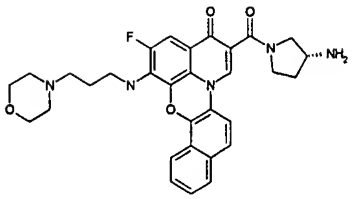
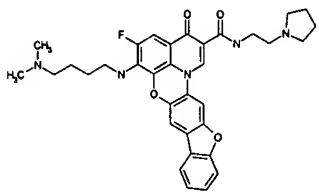
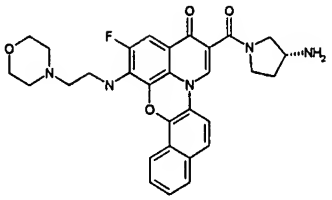
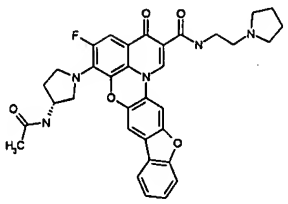
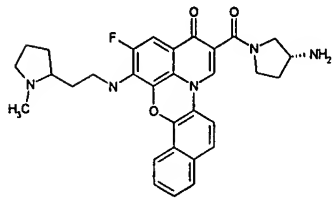
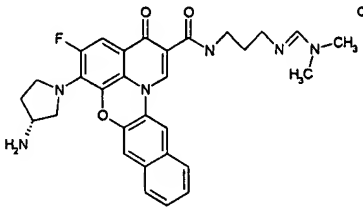
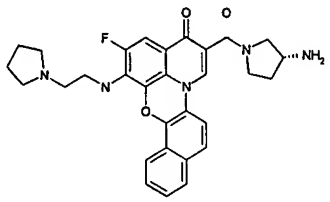
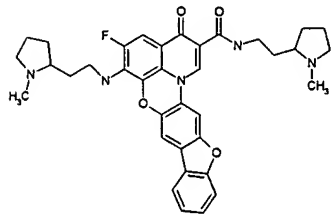
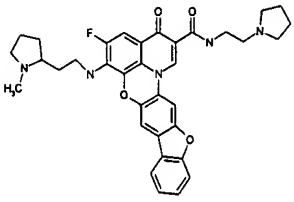
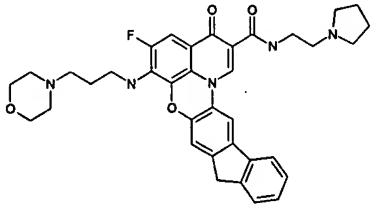
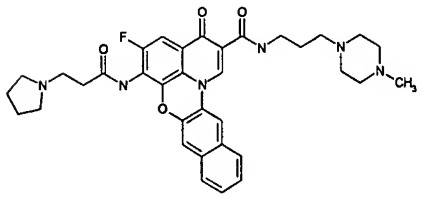
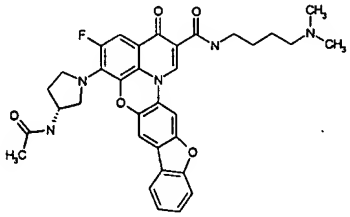
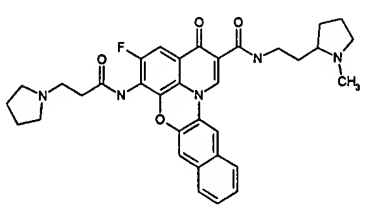
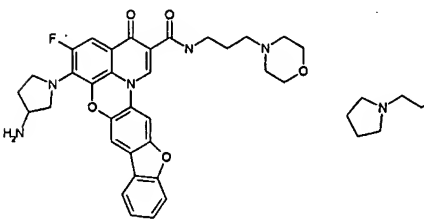
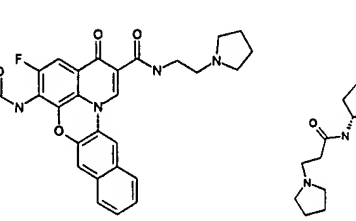
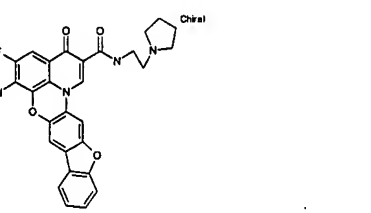
,

Chiral
,

,

,

,

,






Chiral
Chiral
Chiral

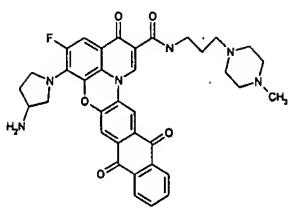
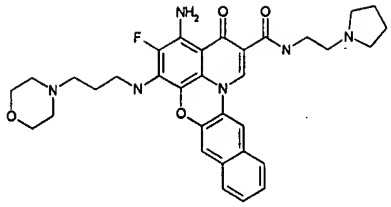
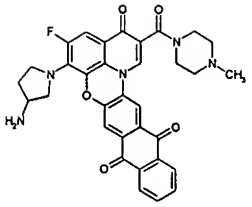
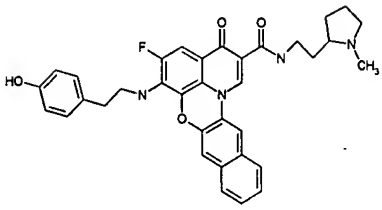
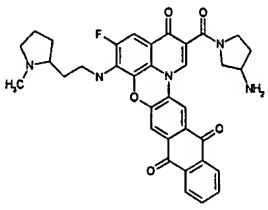
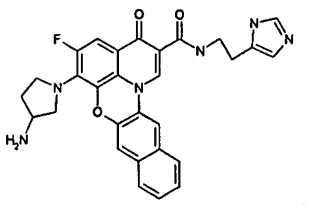
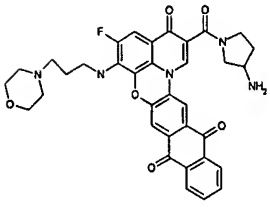
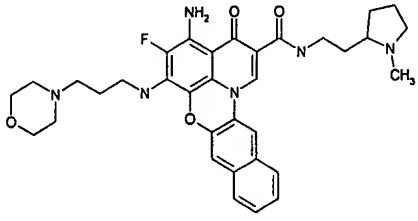
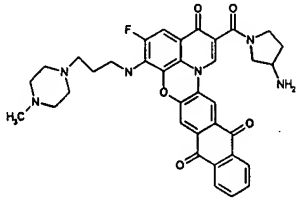
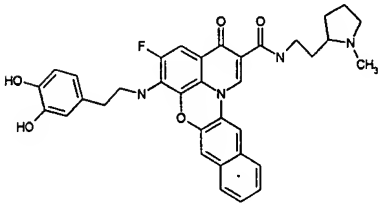
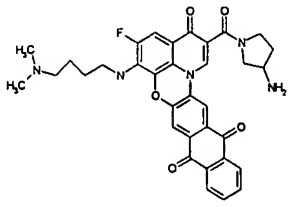
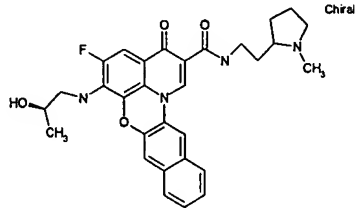
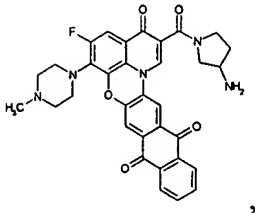
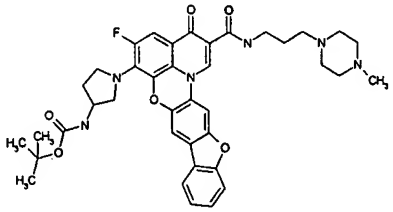
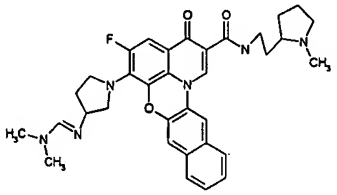
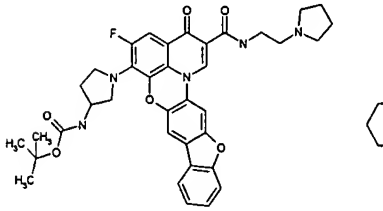
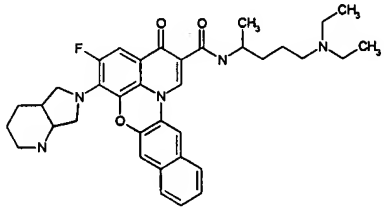
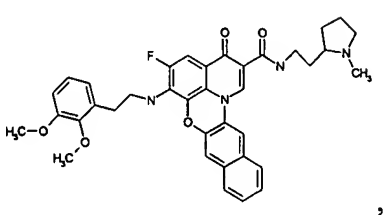


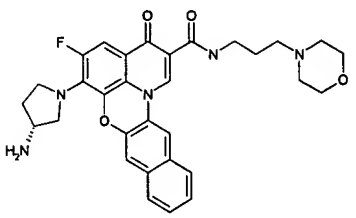
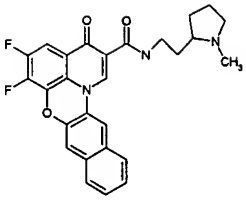
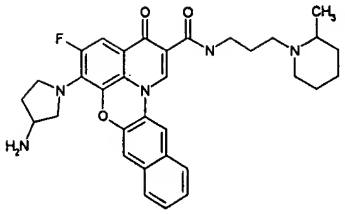
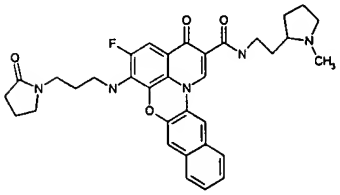
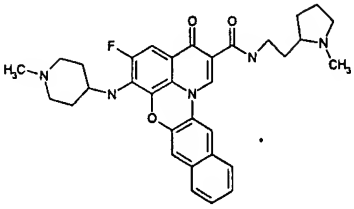
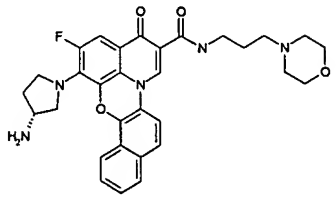
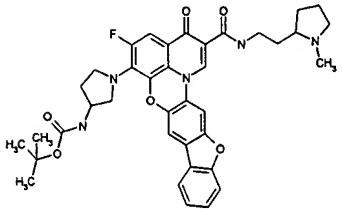
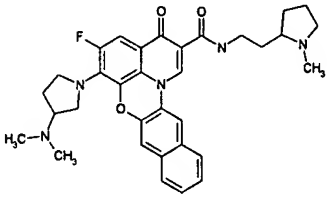
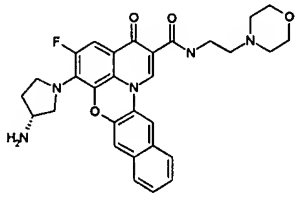
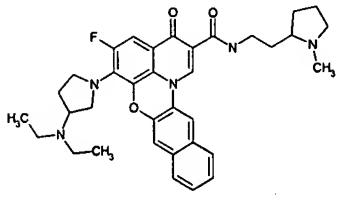
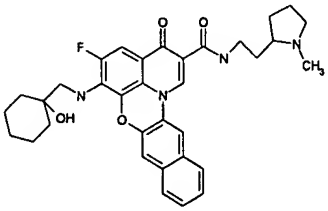
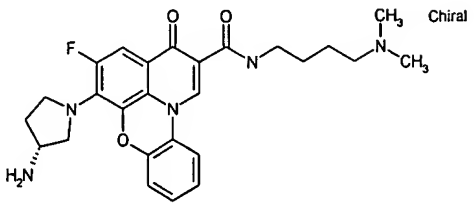
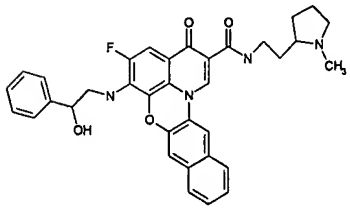
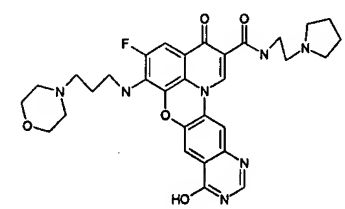
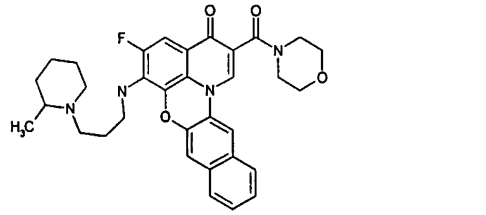
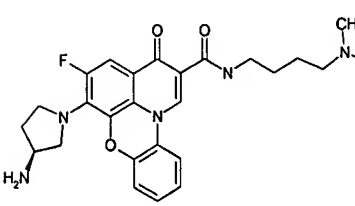
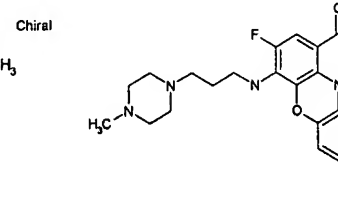
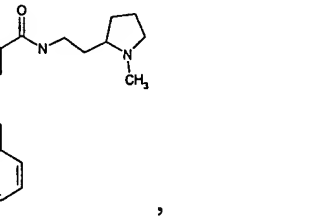

,

,

,

,

,

,

,

Chiral
,

,

,

,

,

,

,

,

,

,

,

,

,

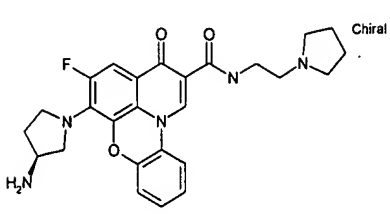
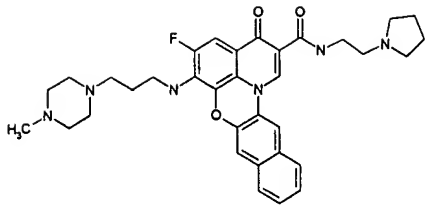
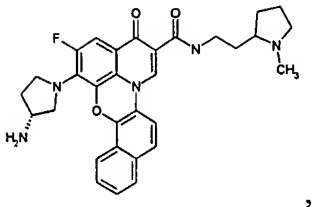
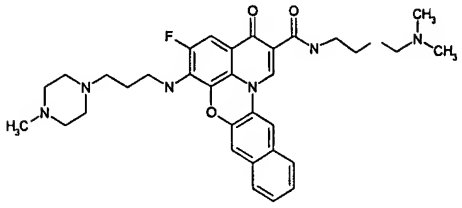
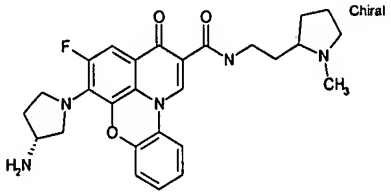
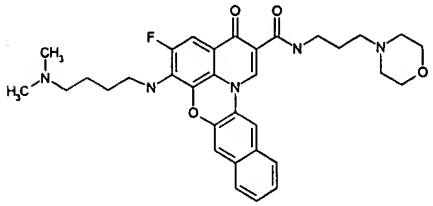
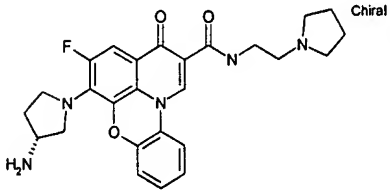
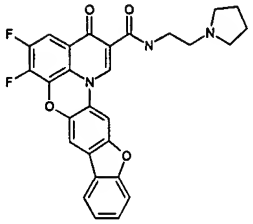
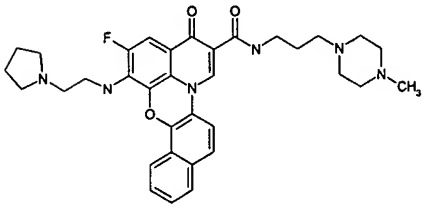
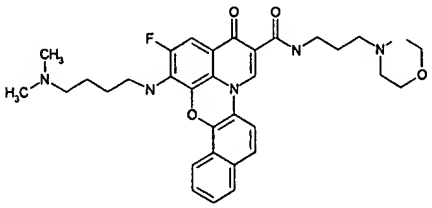
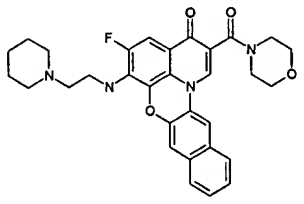
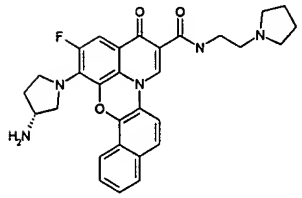
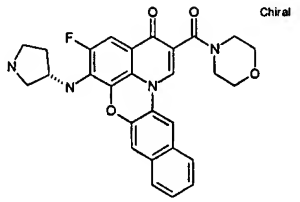
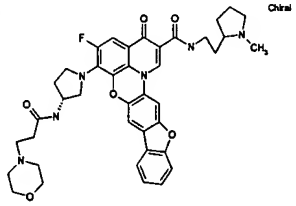
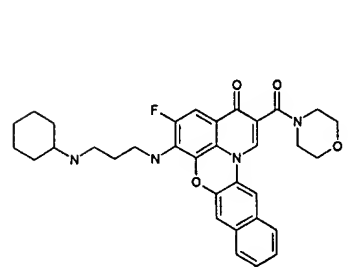
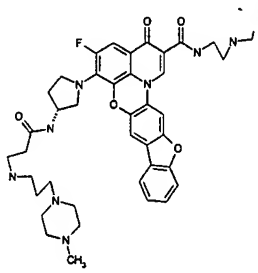
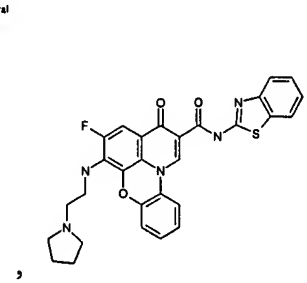
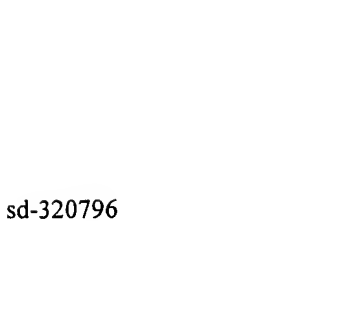
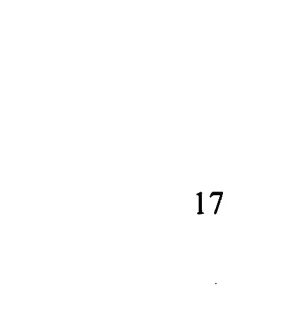
Chiral
,


,

,

,

,

,

,

,

,

,

,

,

Chiral
,

,

,

,

,

,

,


,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

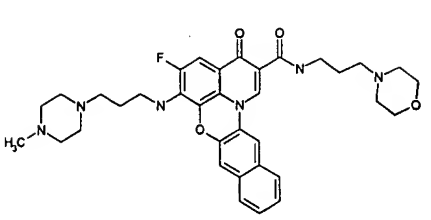
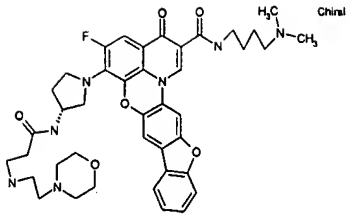
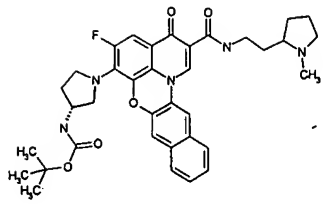
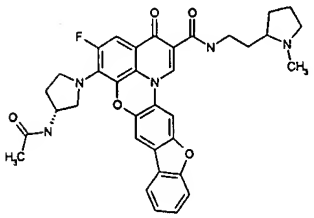
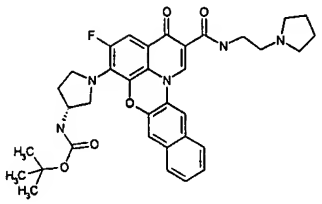
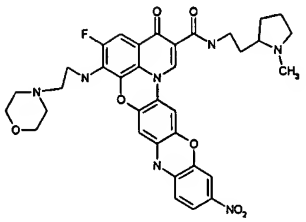
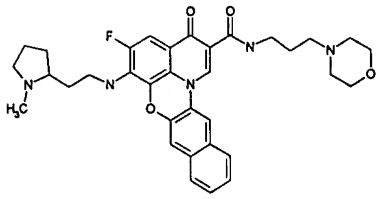
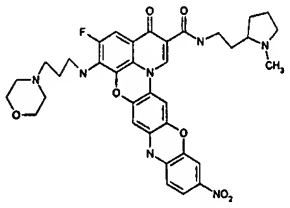
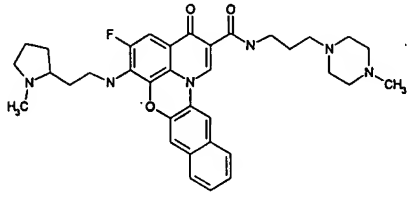
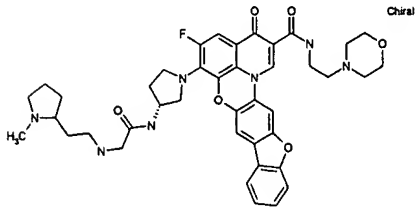
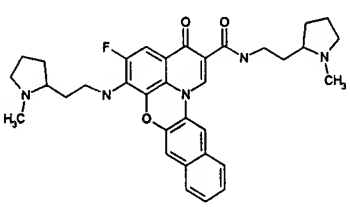
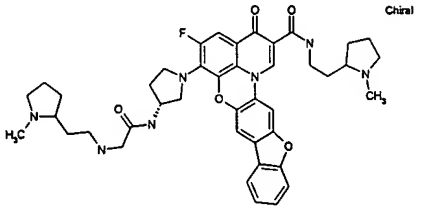
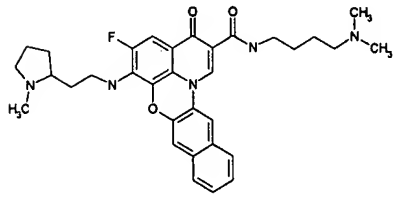
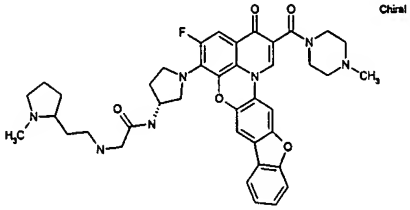
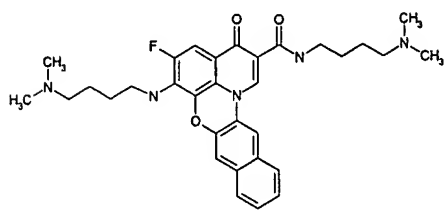
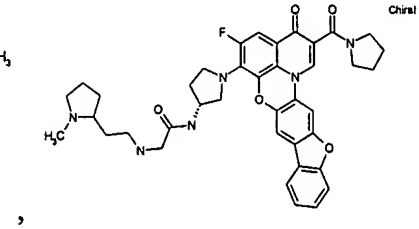
,

,


Chiral
,

,

,

,

Chiral
,

,

Chiral
,

,

,

,

,

,

Chiral
,

Chiral
,

,

,

,

,

,

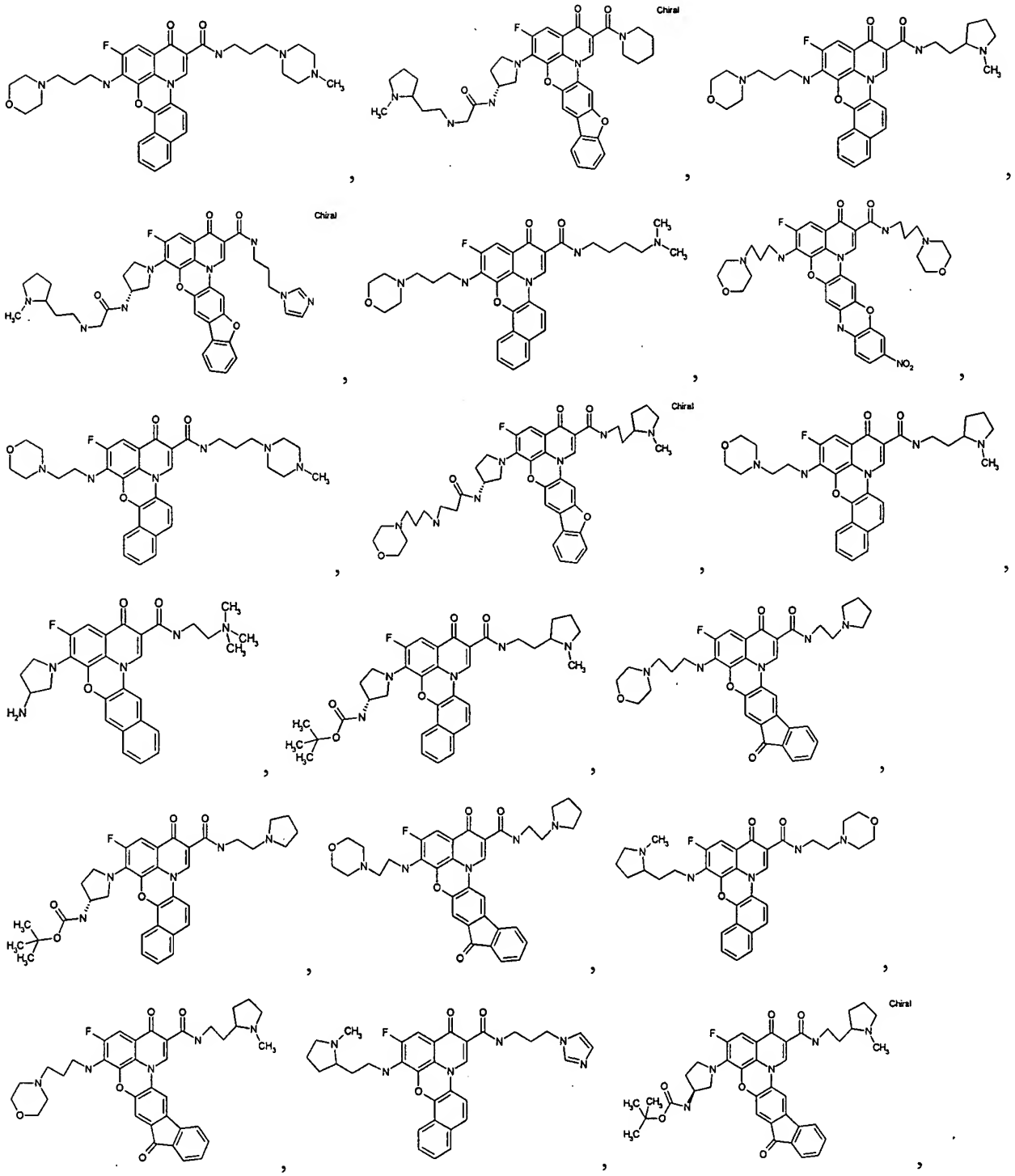
,

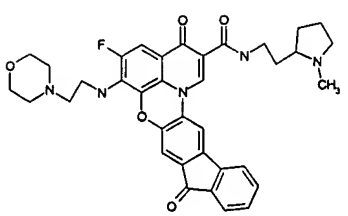
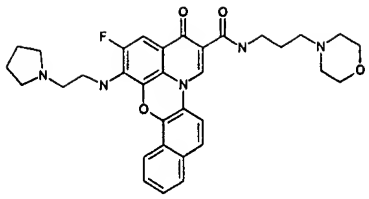
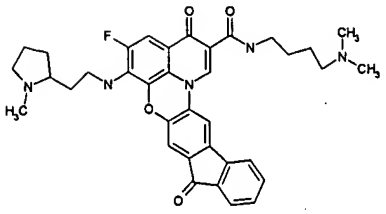
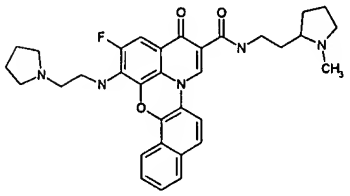
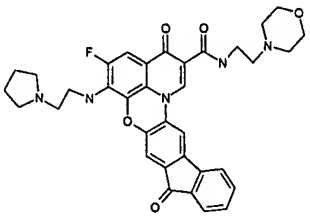
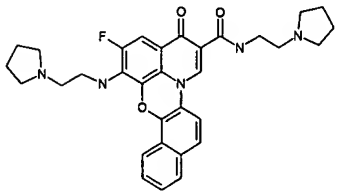
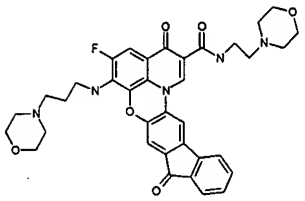
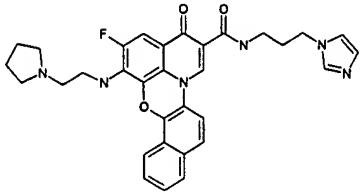
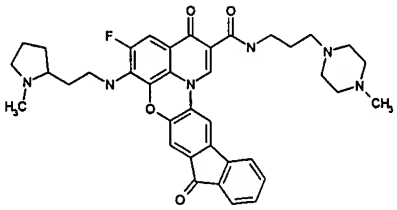
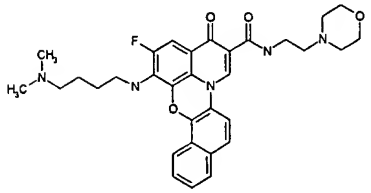
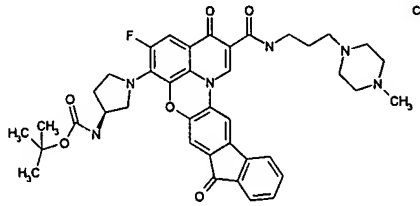
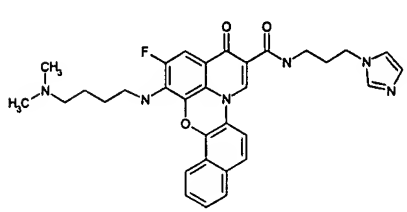
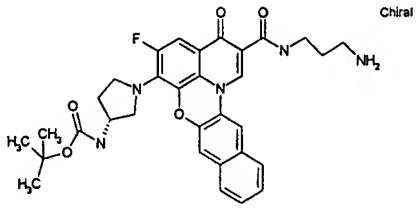
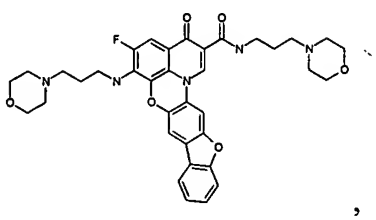
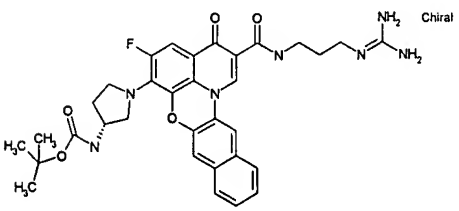
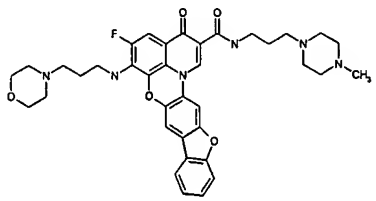
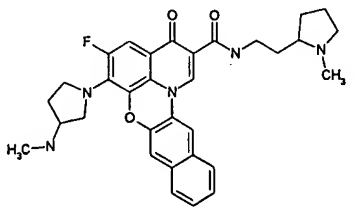
Chiral
,

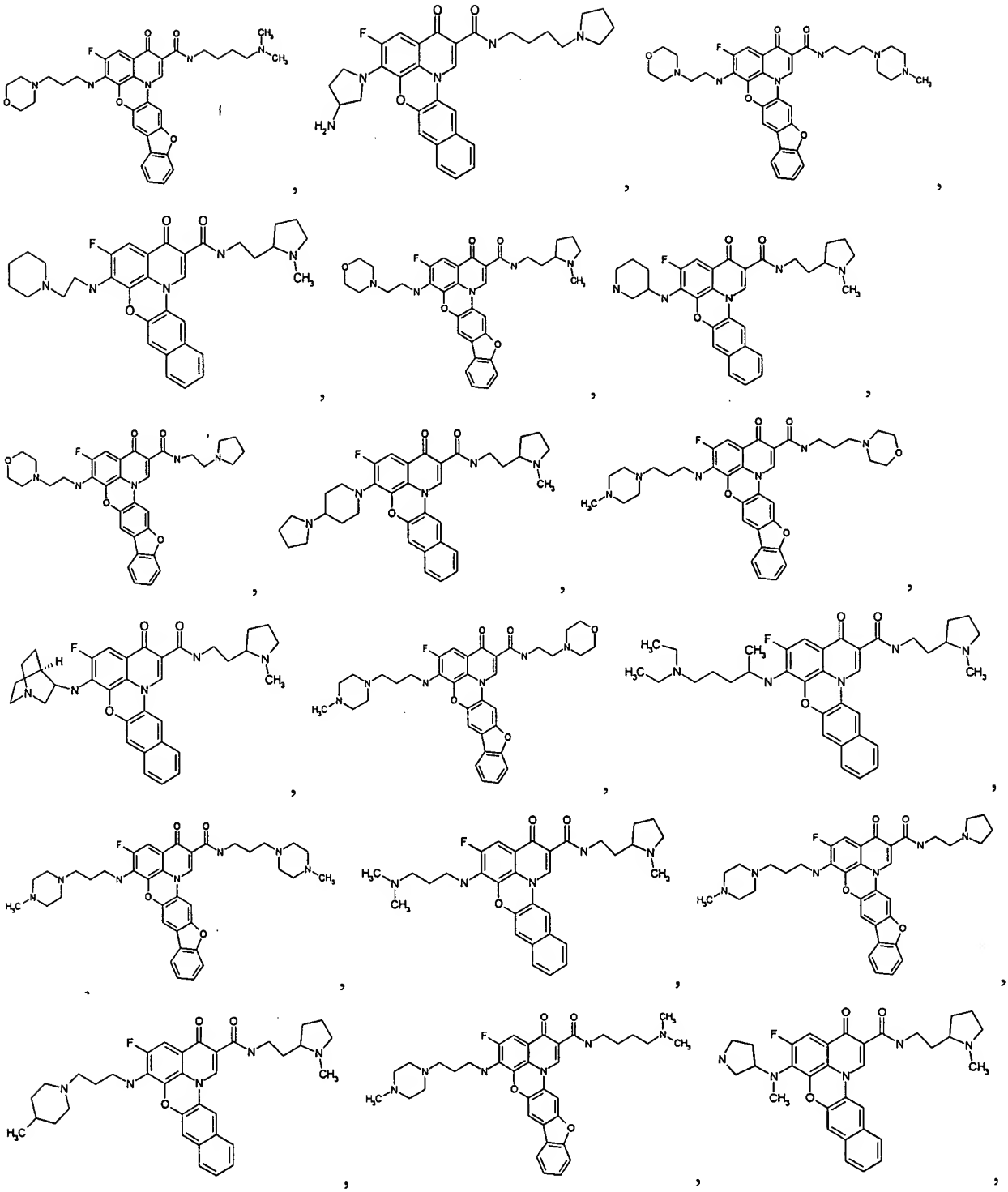

,

Chiral
,

,

,

,

,

,

,

,

Chiral
,

,

Chiral
,

,

Chiral
,

,

,

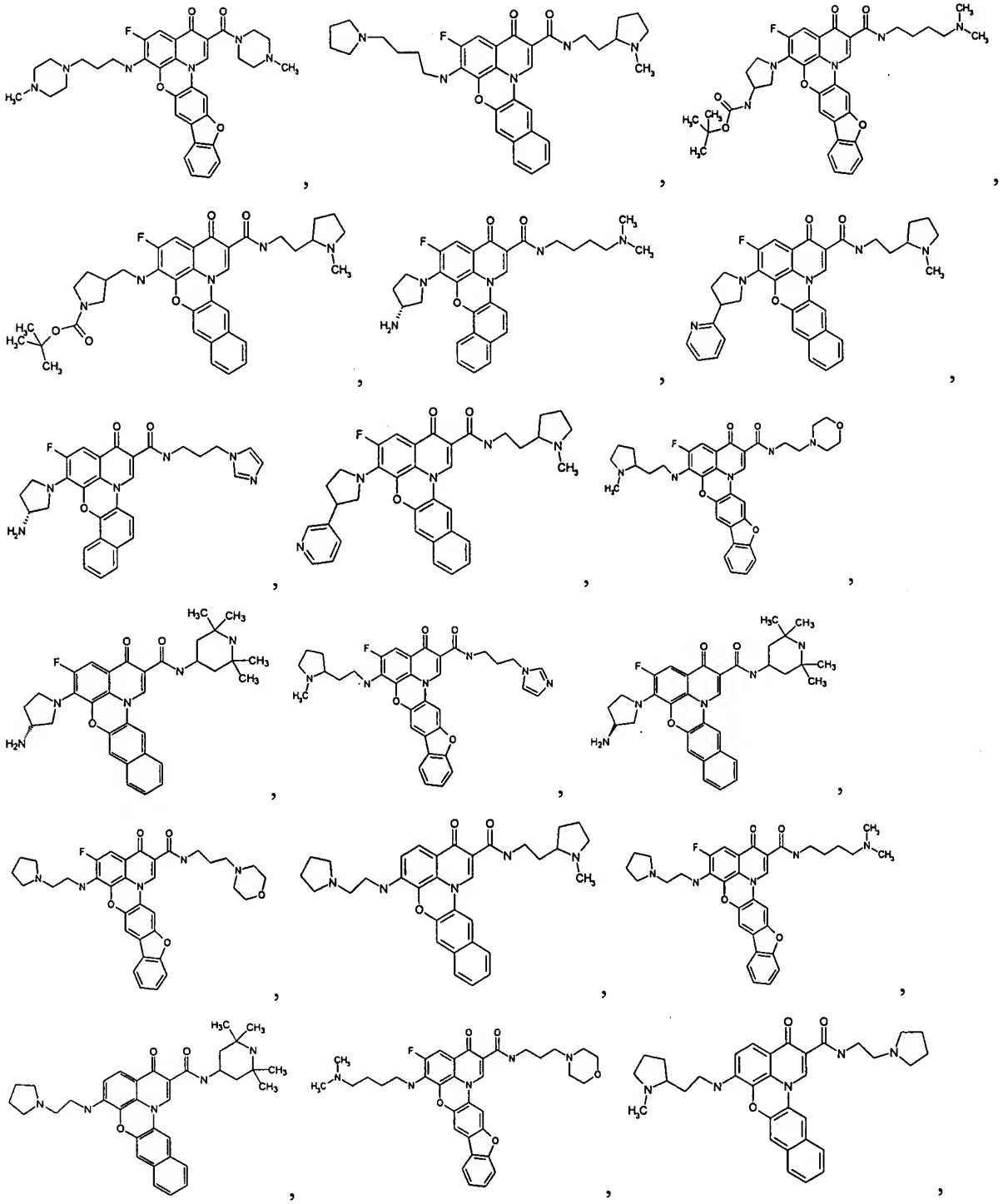
,

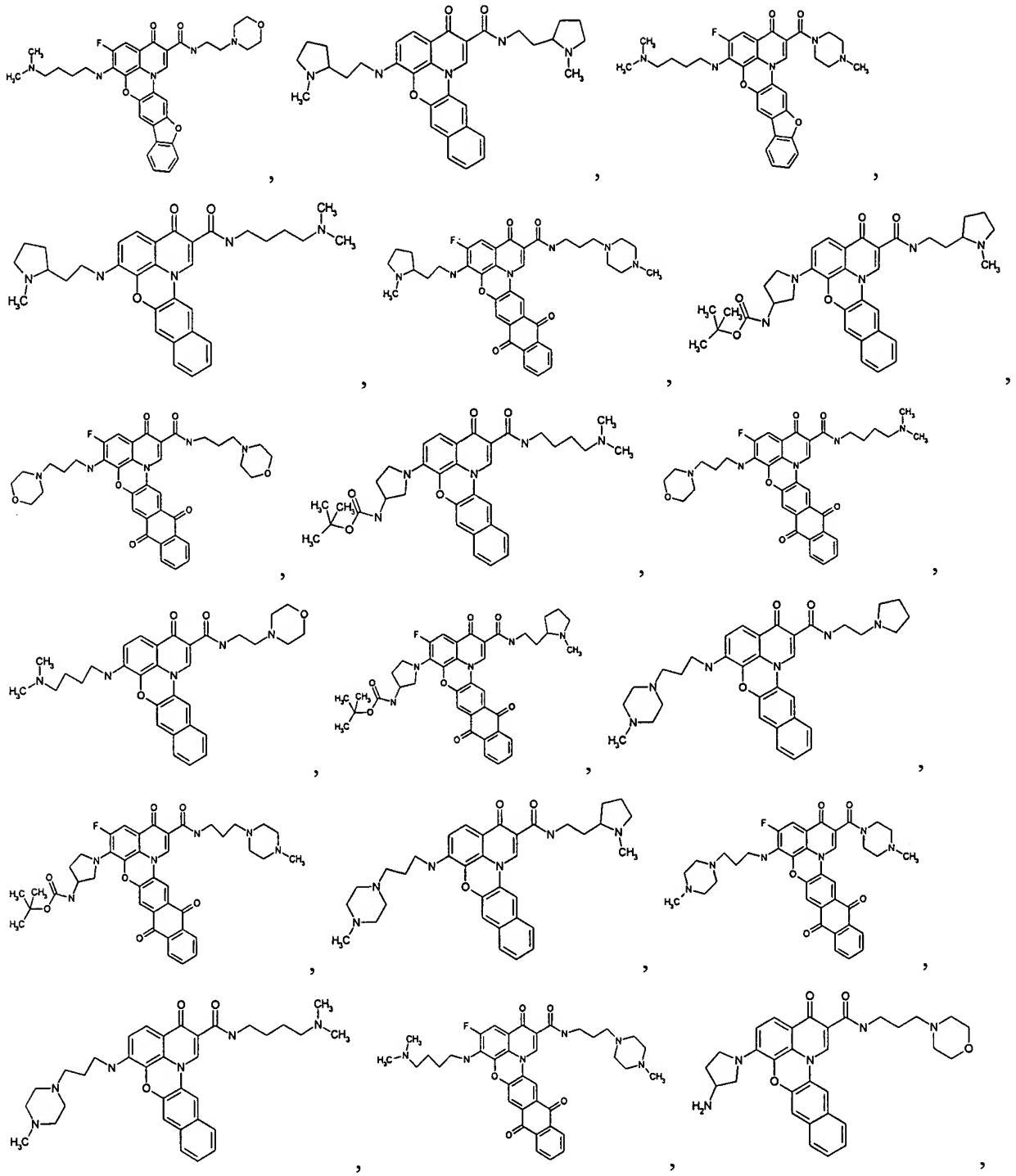
Chiral
,

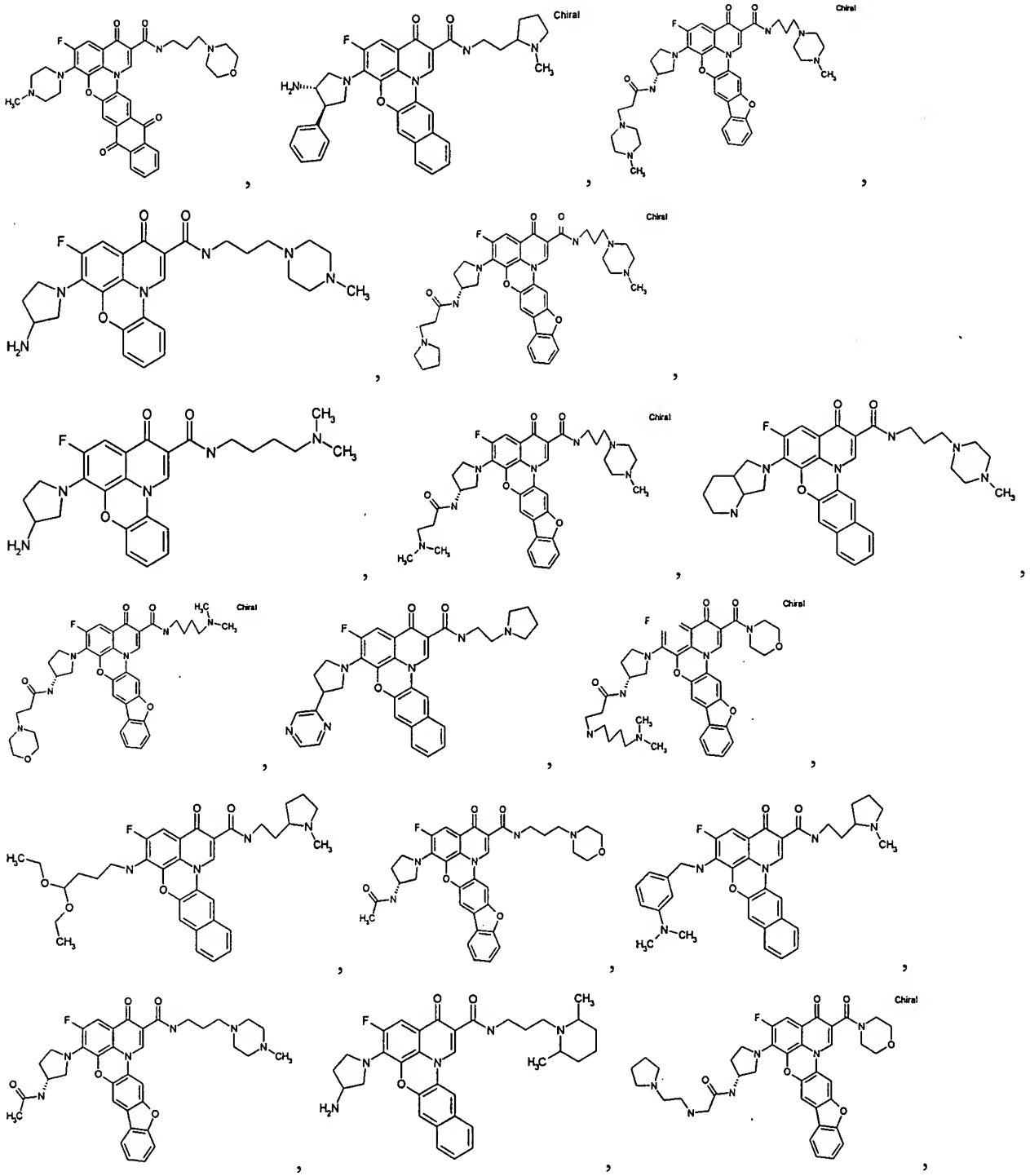


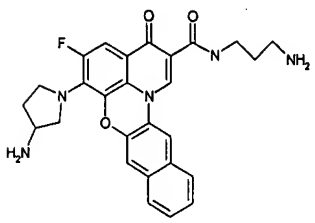
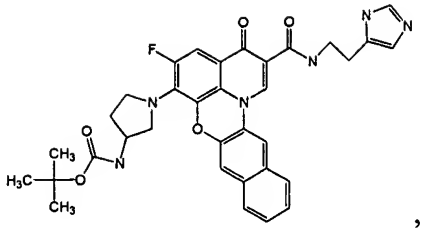
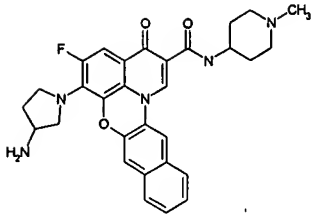
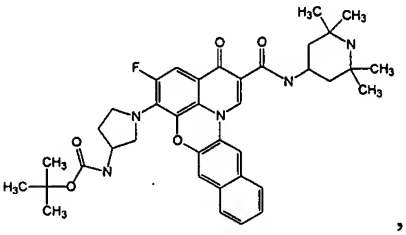
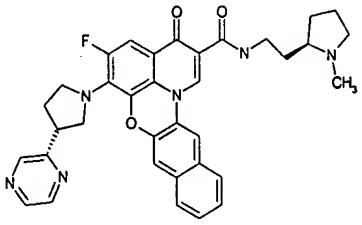
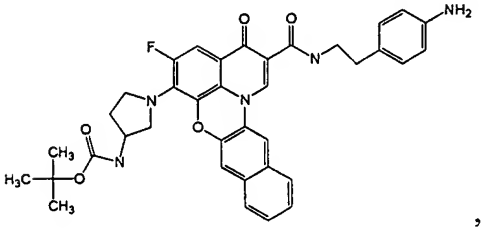
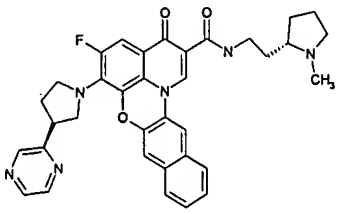
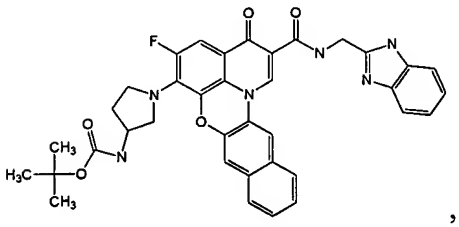
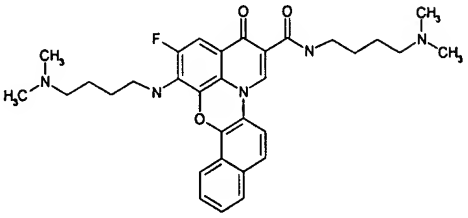
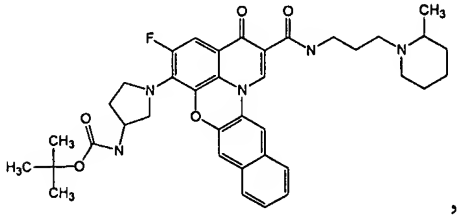
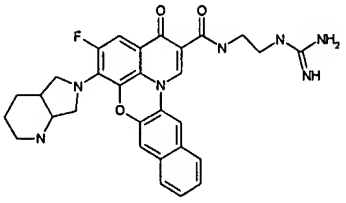
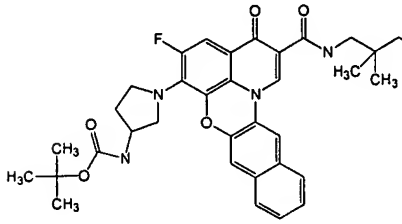
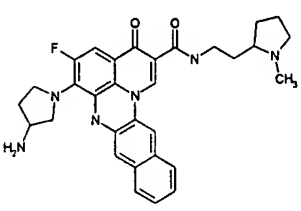

,

,

,

,

,

,

,

,

,

,

Chiral
,

,

Chiral
,

,

Chiral
,

,

,



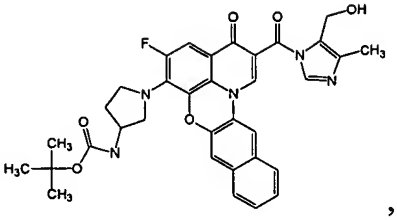


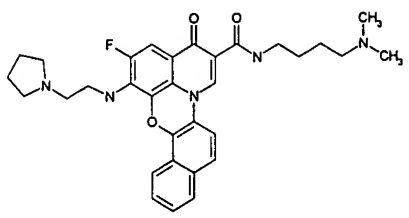
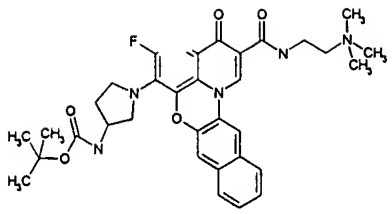
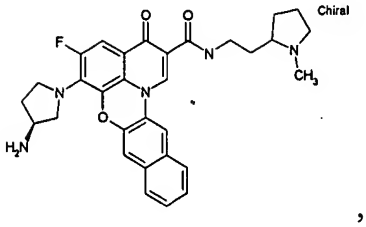
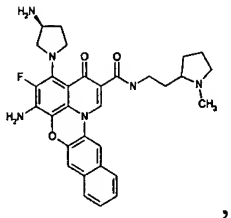
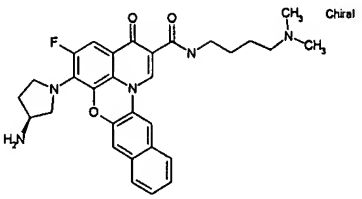
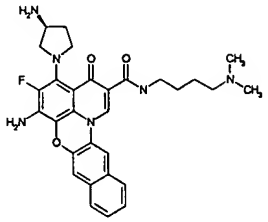
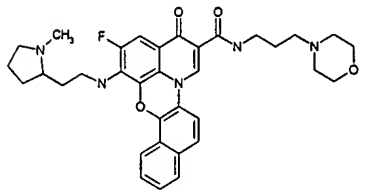
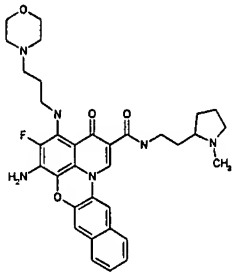
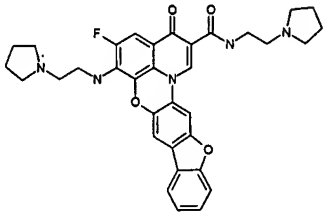
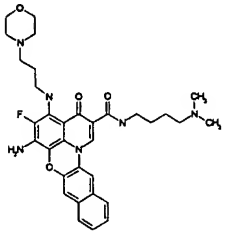
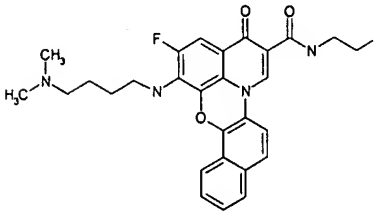
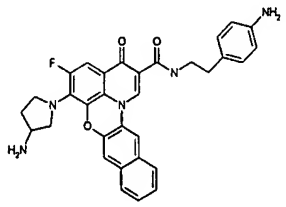
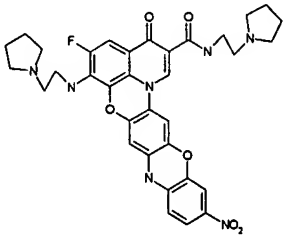
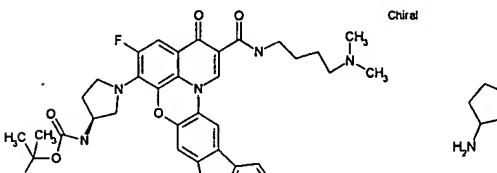
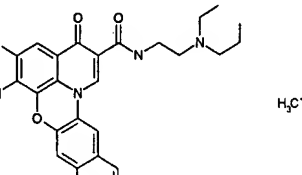
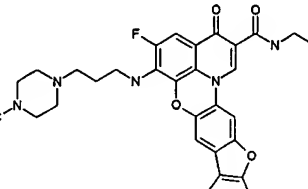
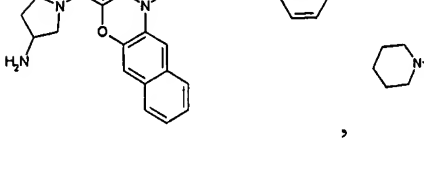
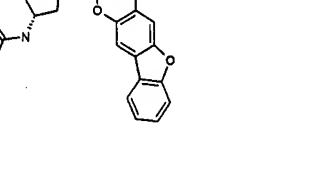
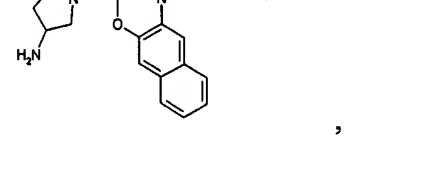





,

,

,

,

,

,

,

,

,

,

,

,

,

,

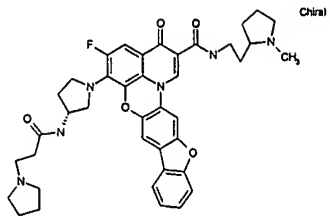
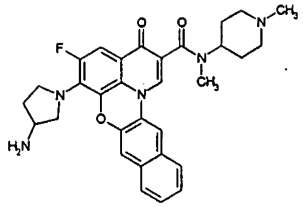
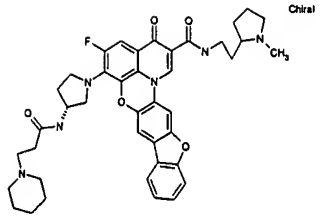
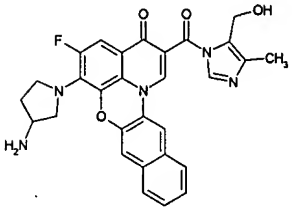
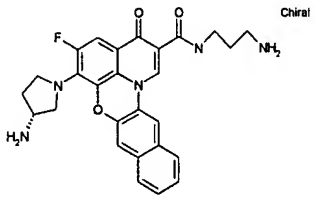
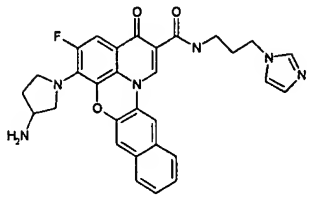
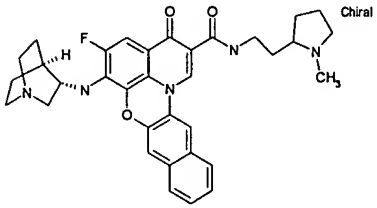
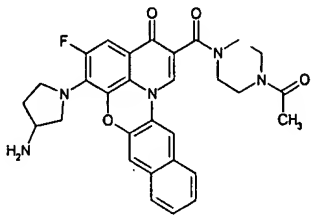
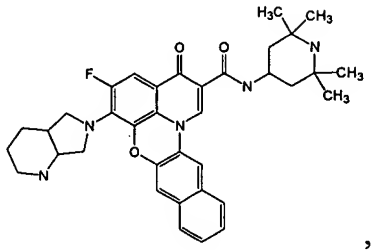
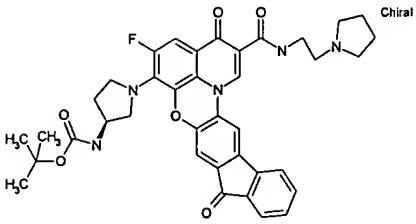
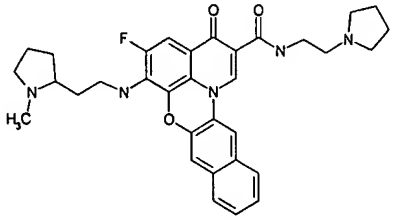
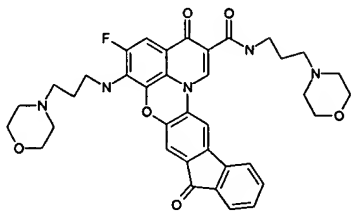
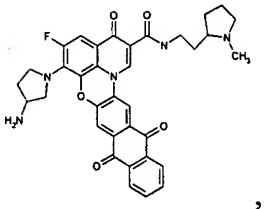
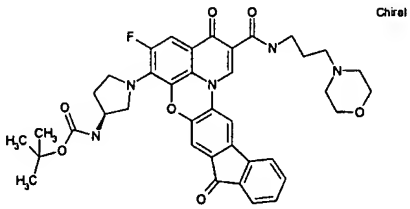
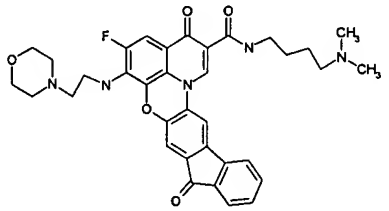
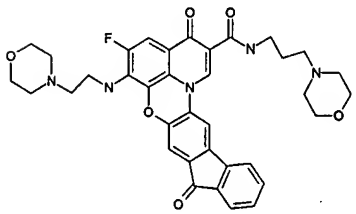
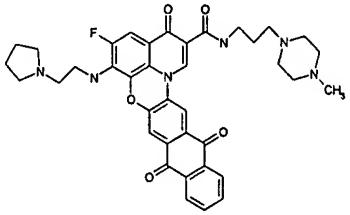
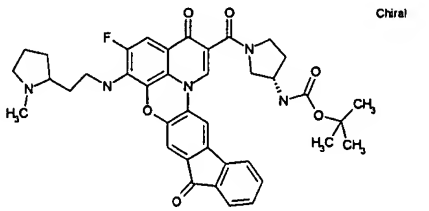
,

,

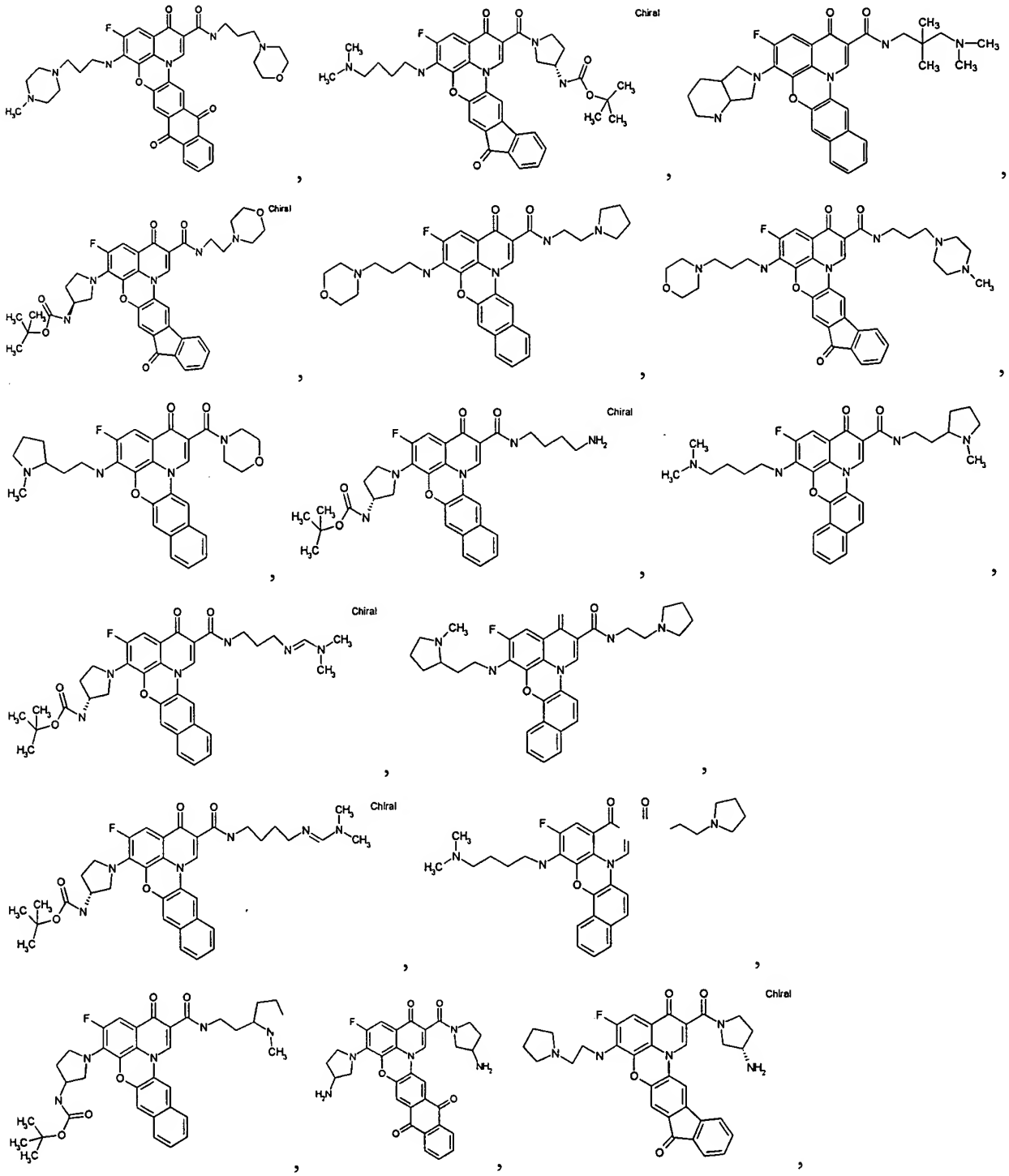

,

,

Chiral
,

,

Chiral
,

,

,

,

,

,

,

,

,

,

,

,

Chiral
,

,

,

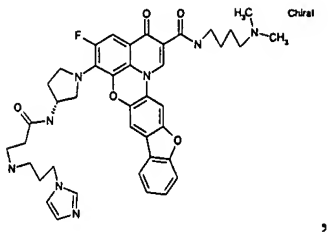
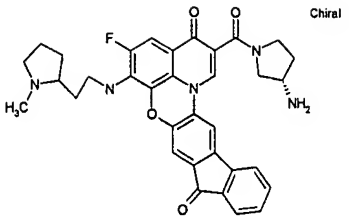
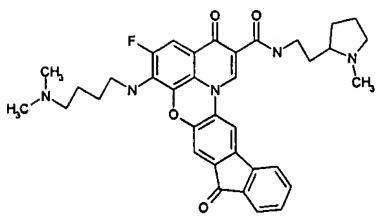
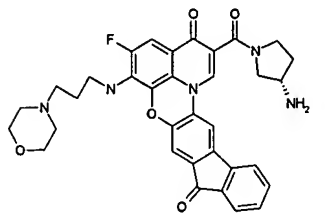
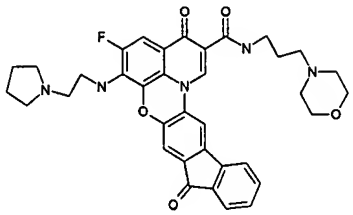
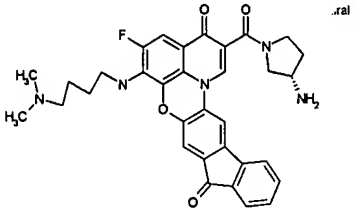
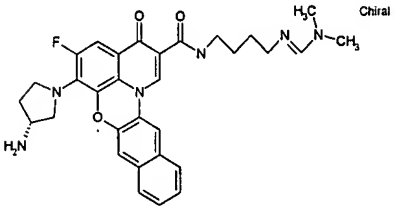
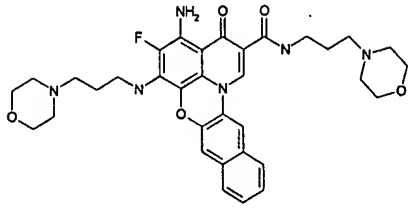
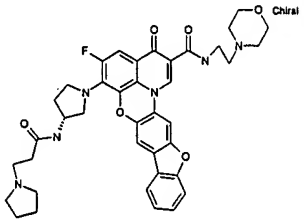
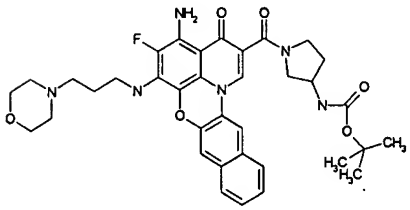
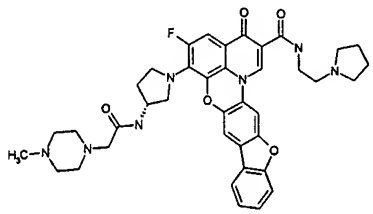
,

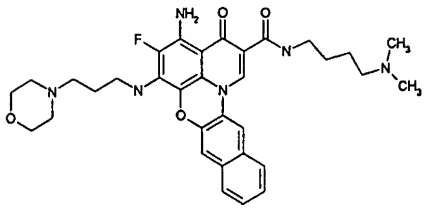
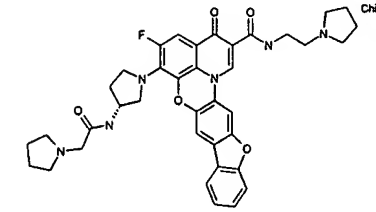
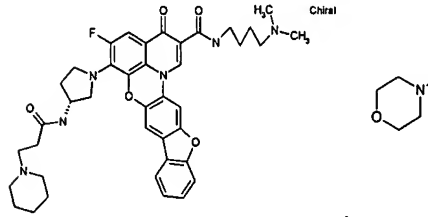
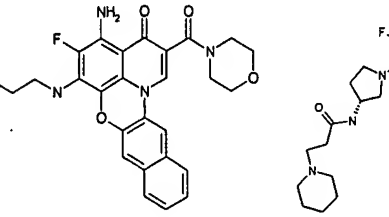
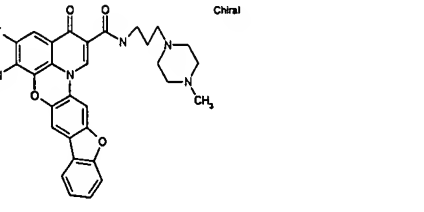
Chiral
,

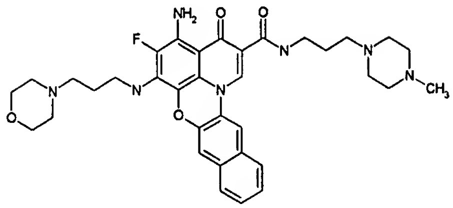
,

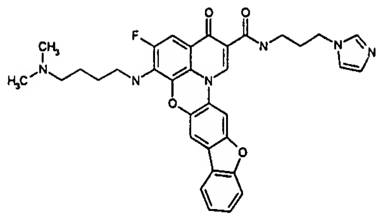

Chiral
,

,

Chiral
,

,

Chiral
,

,

Chiral
,

,

,

Chiral
,

,

,

,

Chiral
,

,

,

,

Chiral

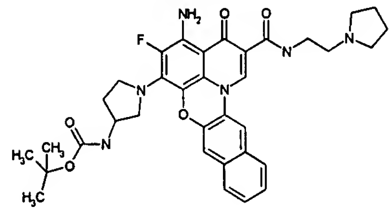


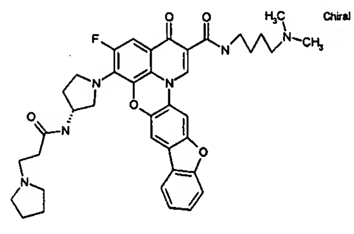












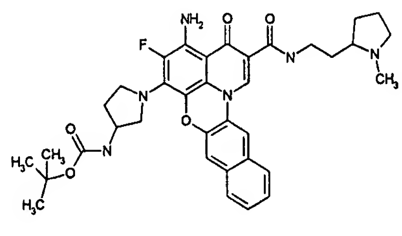






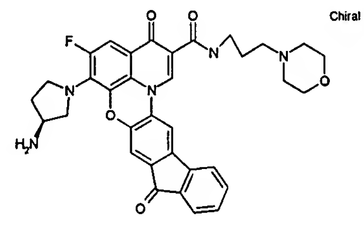
 ,

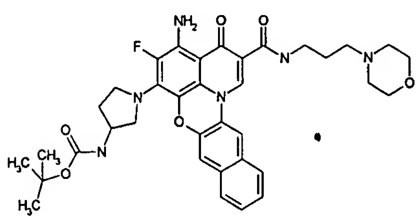
 ,

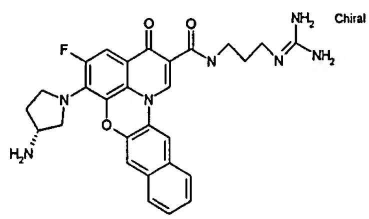
 ,

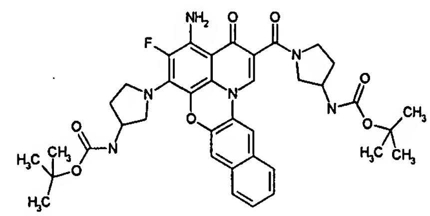

Chiral,

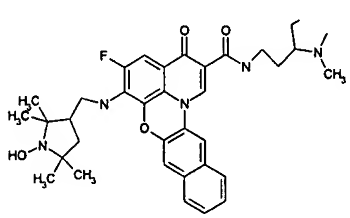
 ,

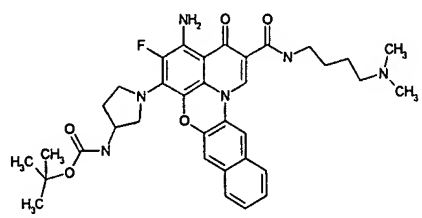

Chiral,

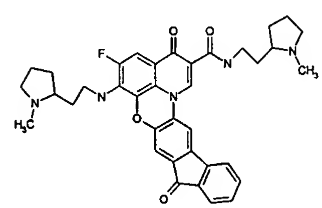
 ,

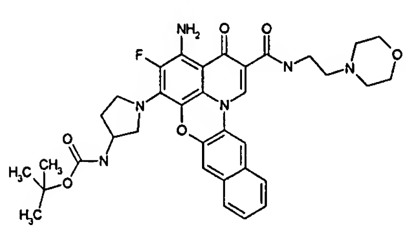

Chiral,

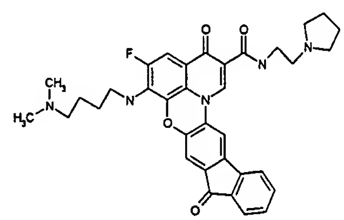
 ,

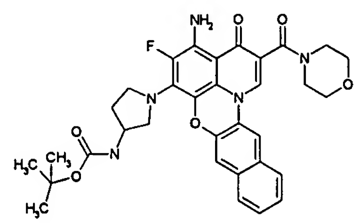
 ,

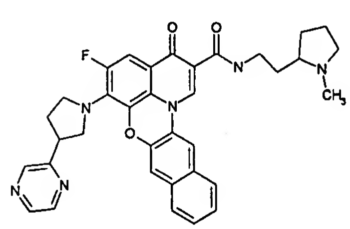
 ,

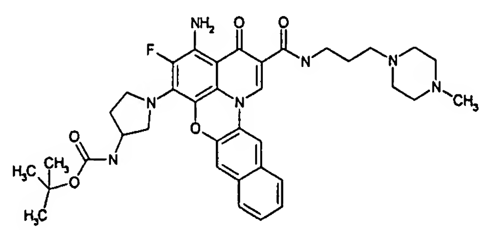
 ,

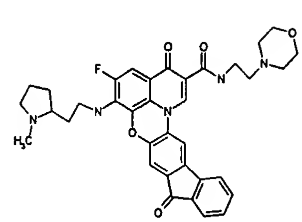
 ,

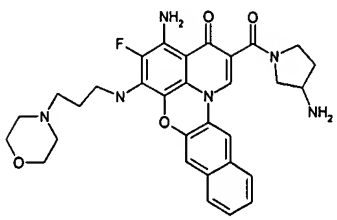
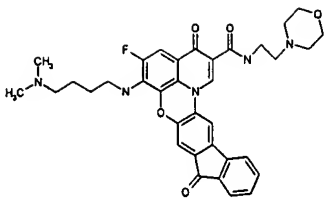
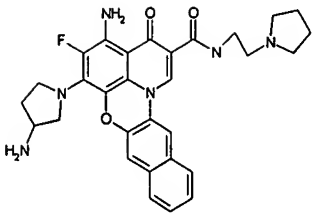
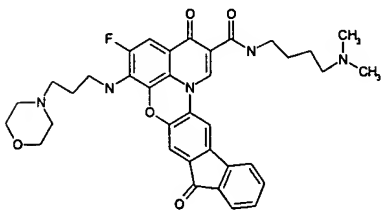
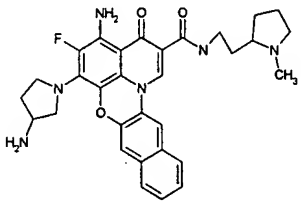
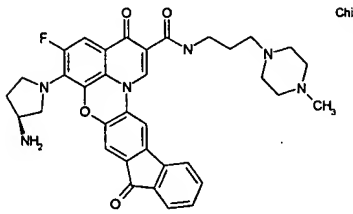
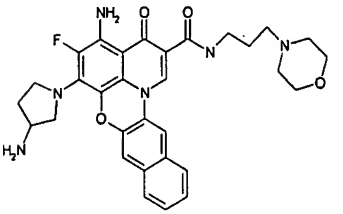
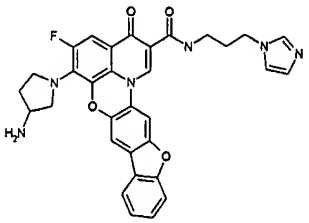
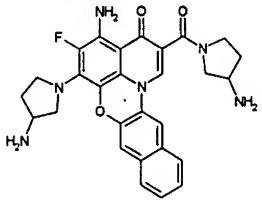
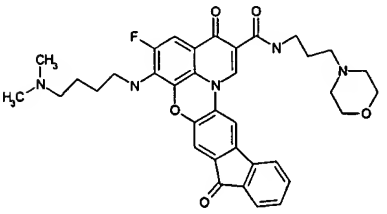
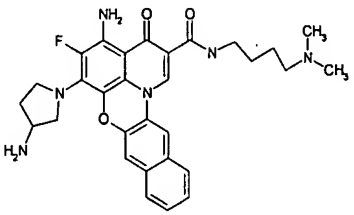
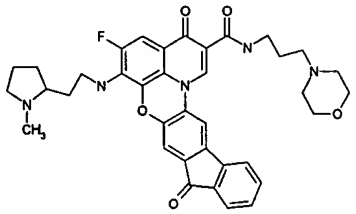
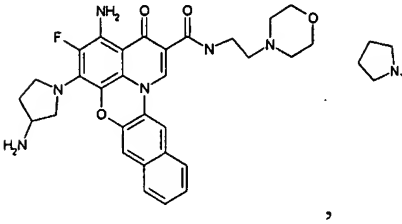
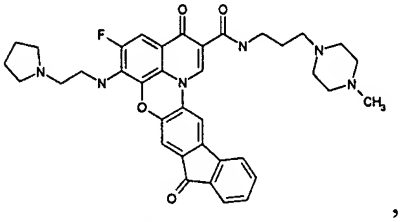
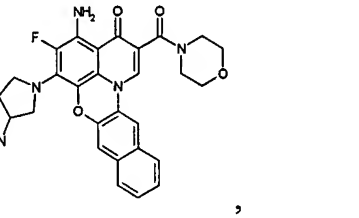
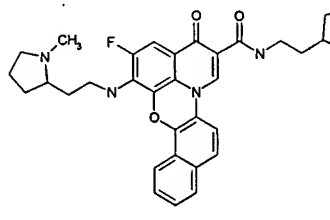
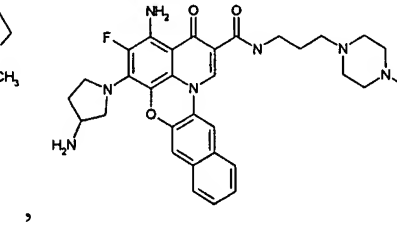
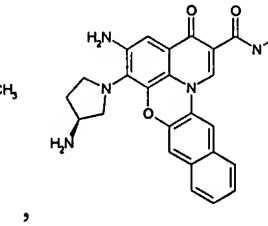
 ,

 ,

 ,

 ,

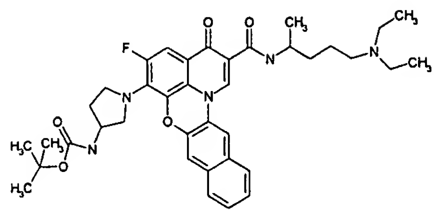
 ,


,

,

,

,

,

Chiral
,

,

,

,

,

,

,

,

,

,

,

,

,

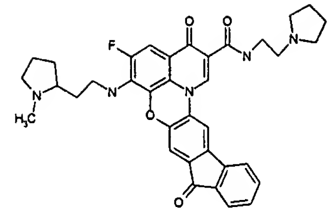
,

,

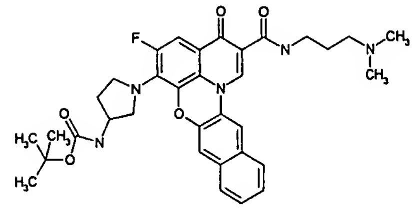
,



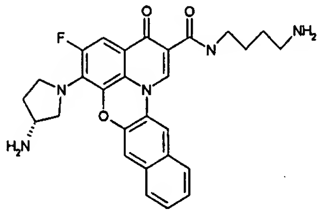
,



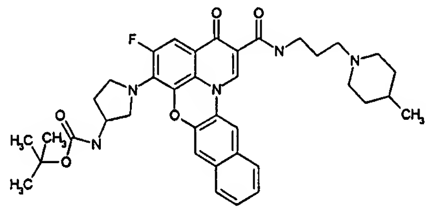
,



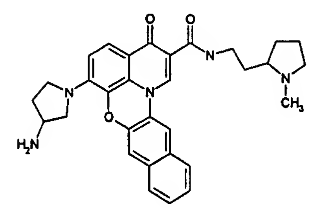
,



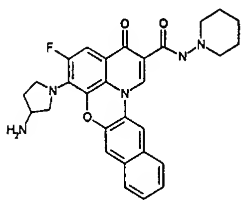
,



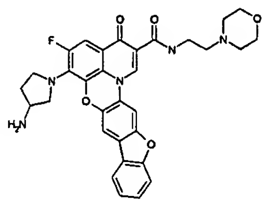
,



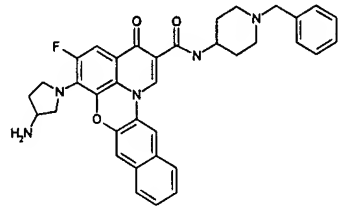
,



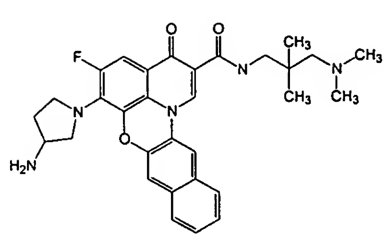
,



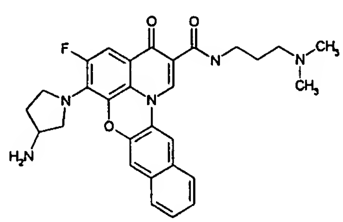
,



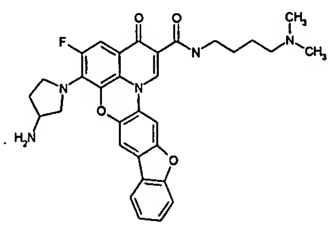
,



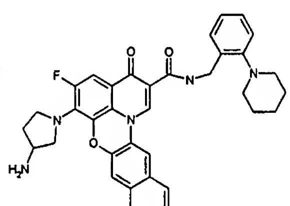
,



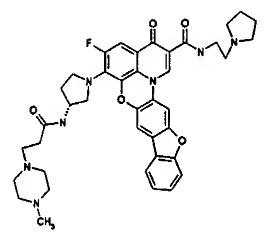
,



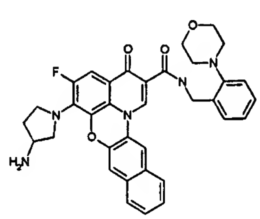
,



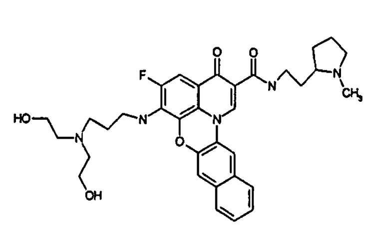
,



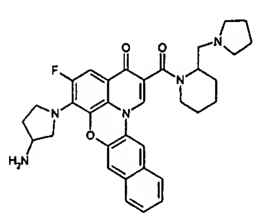
,



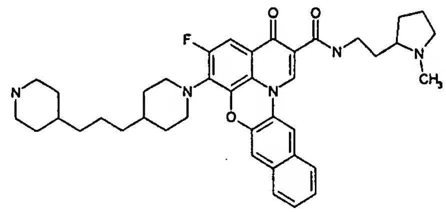
,



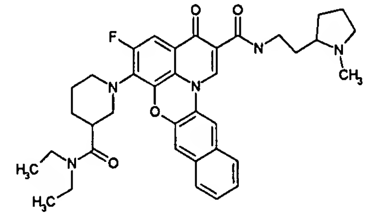
,



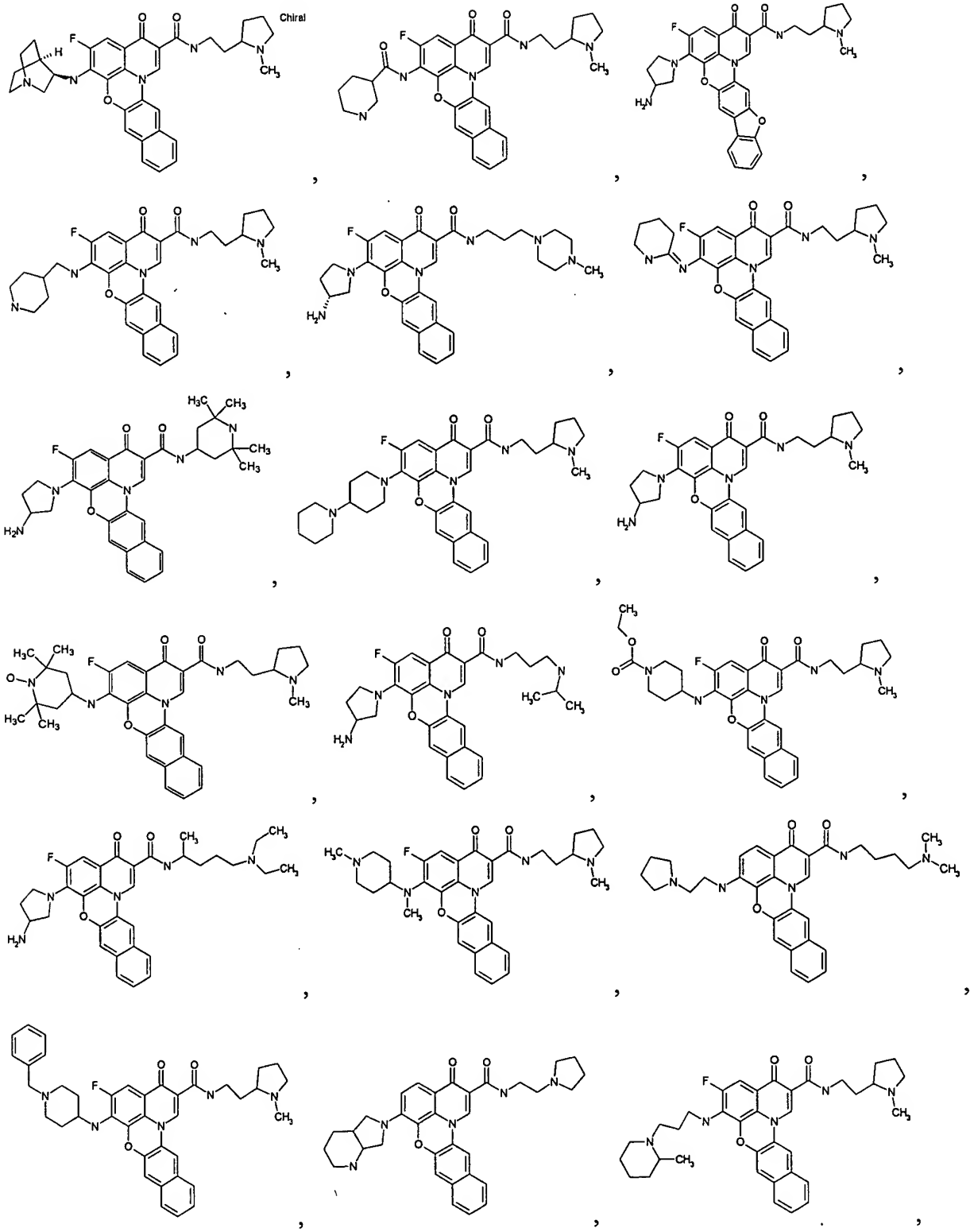
,

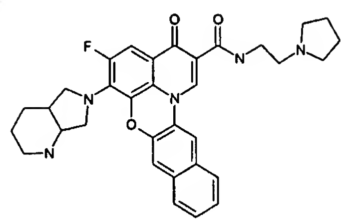
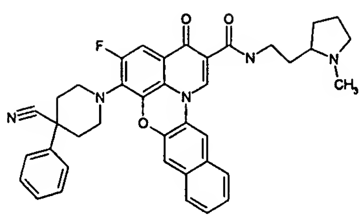
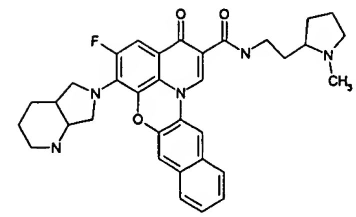


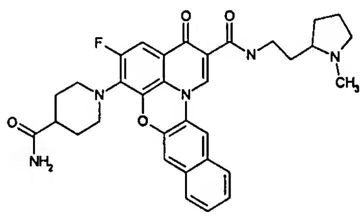
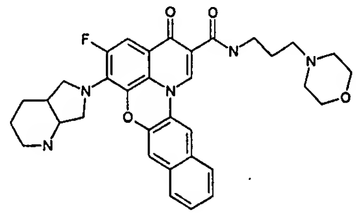
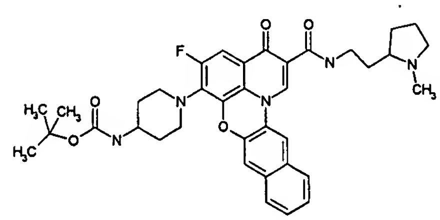
,

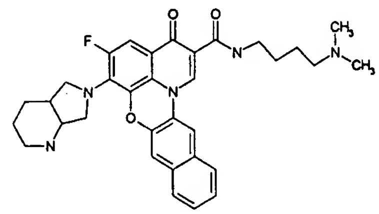
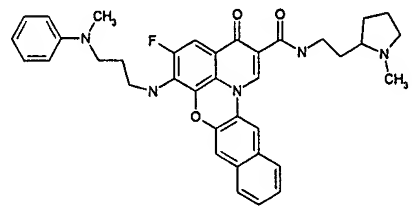
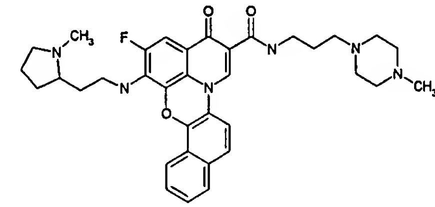


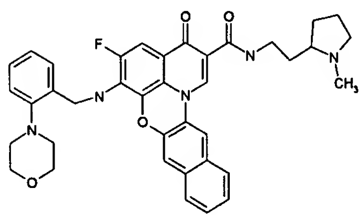
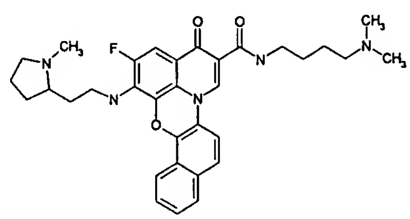
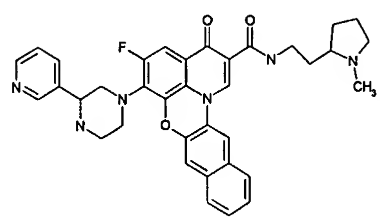
,

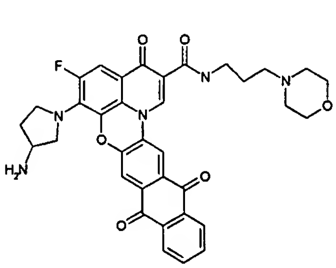
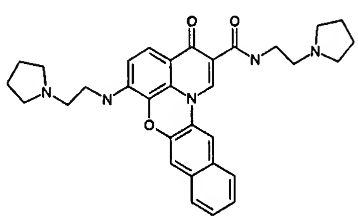
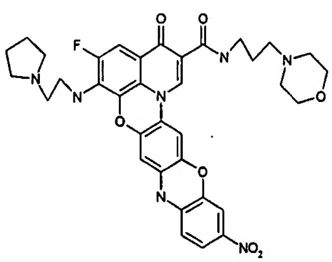


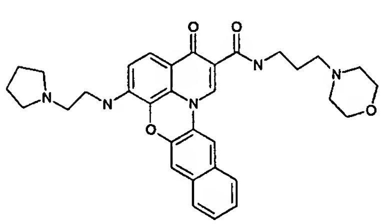
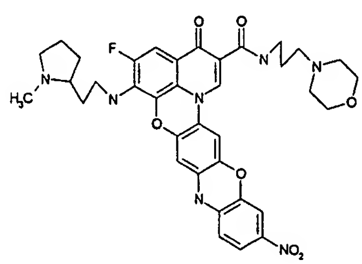
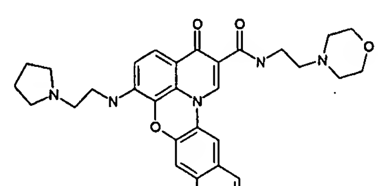
 ,
 ,
 ,

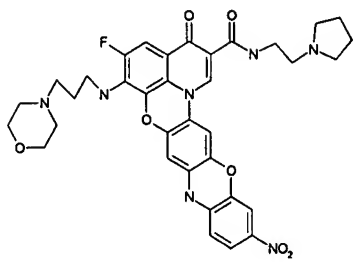
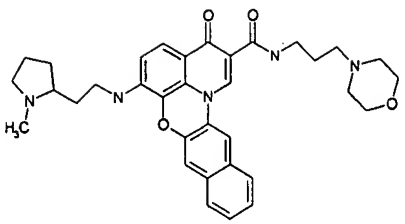
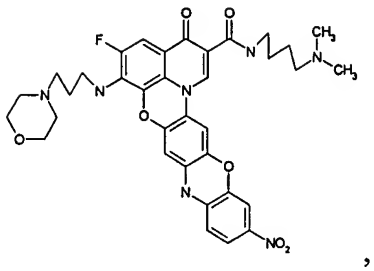
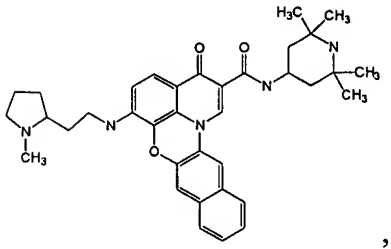
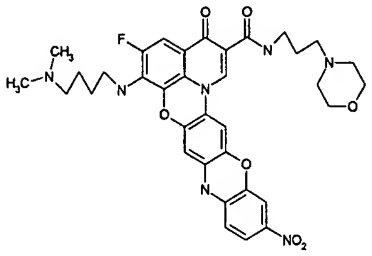
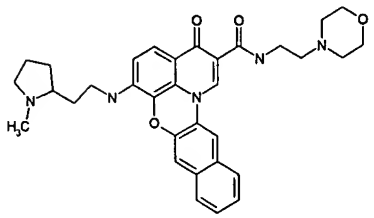
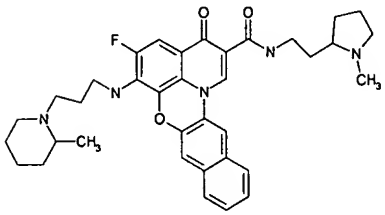
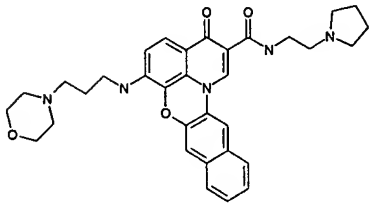
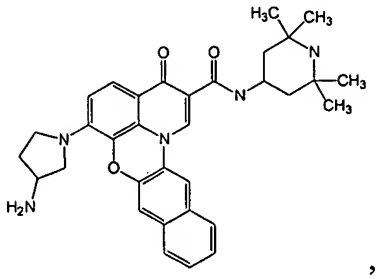
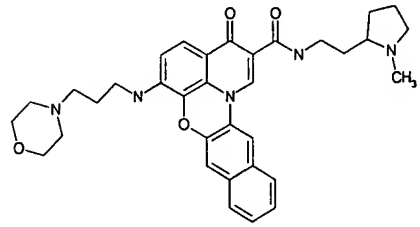
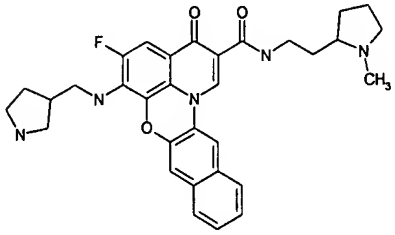
 ,
 ,
 ,

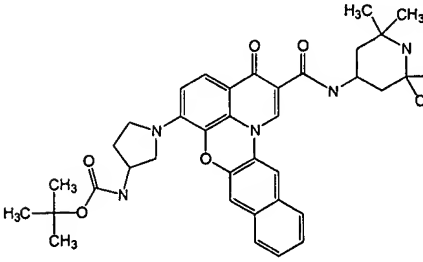
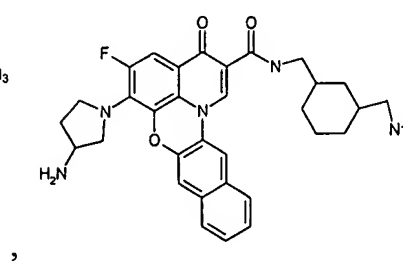
 ,
 ,
 ,

 ,
 ,
 ,

 ,
 ,
 ,

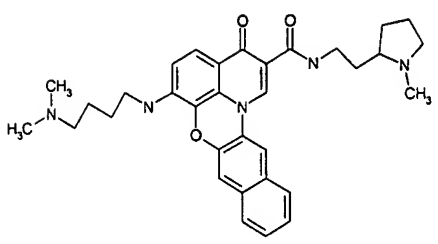
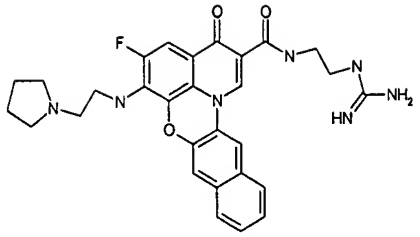
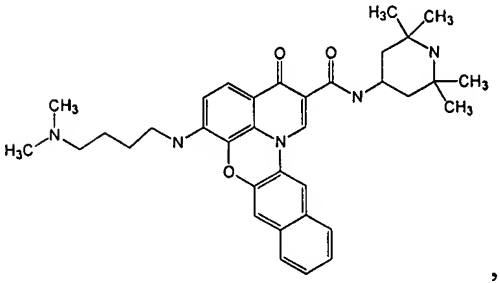
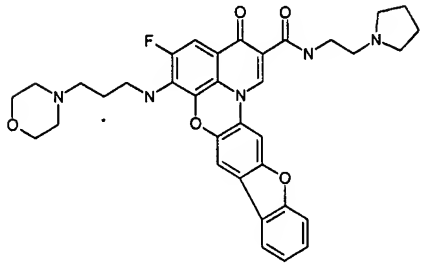
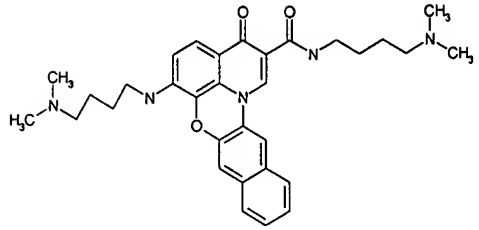
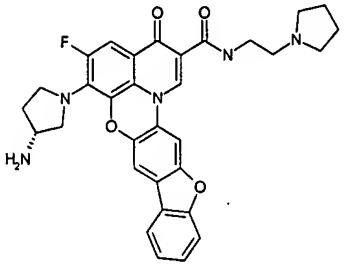
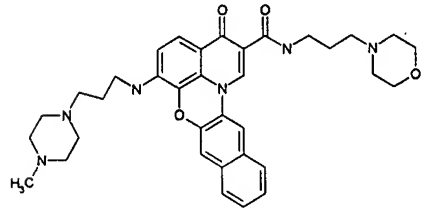
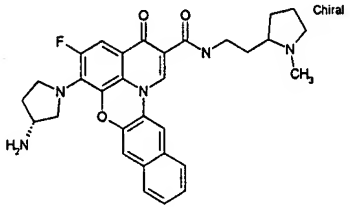
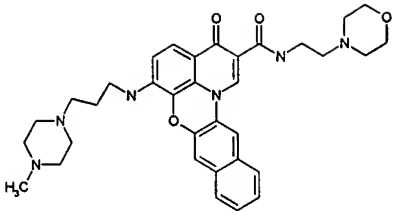
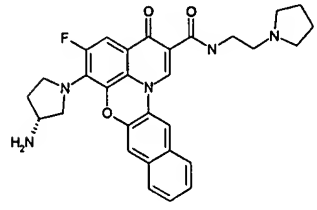
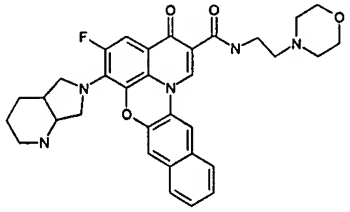
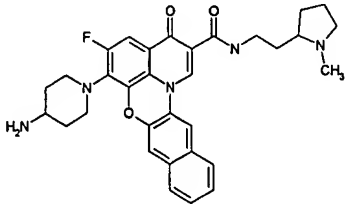
 ,
 ,
 ,

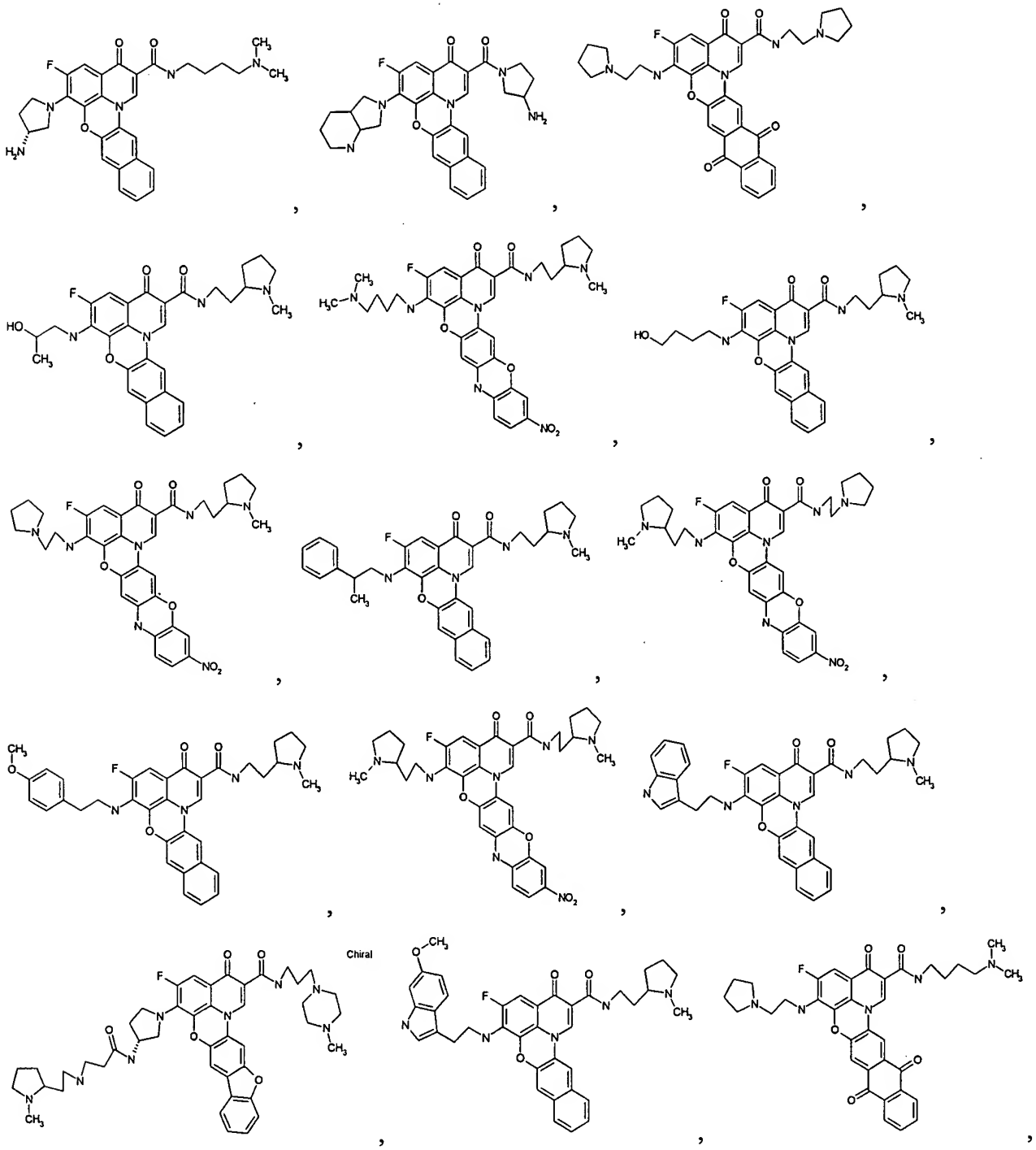

,

,

,

,

,

,

,

,

,

,

,

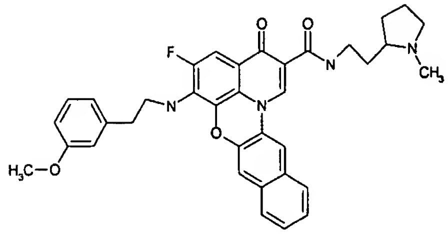
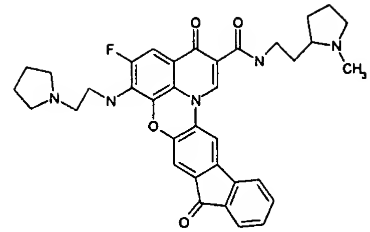
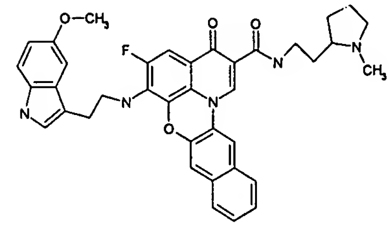
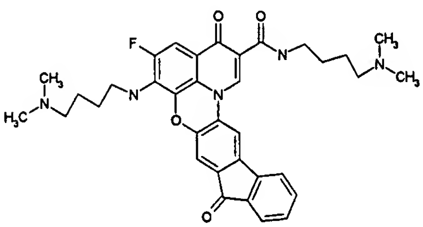
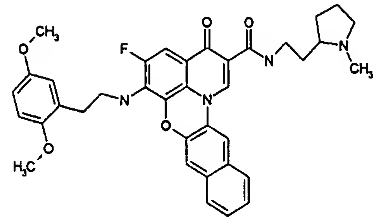
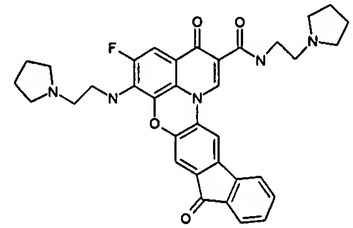
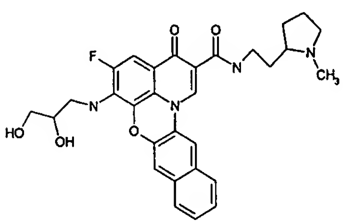
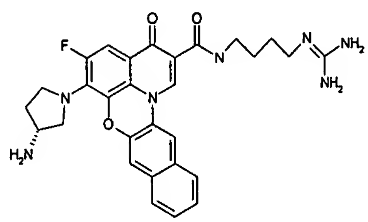
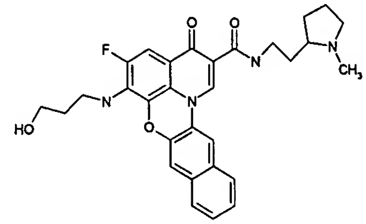
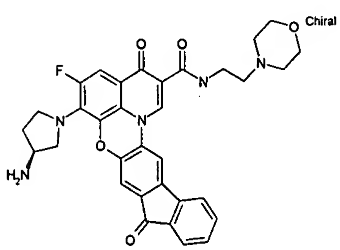
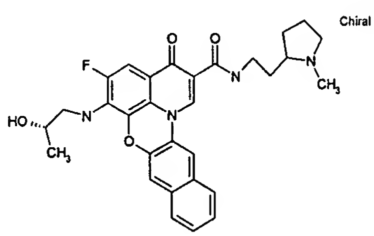
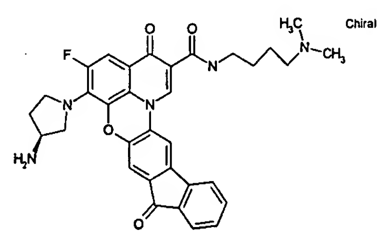
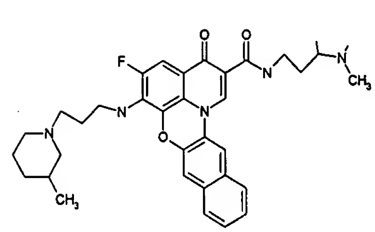
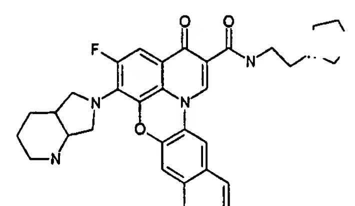
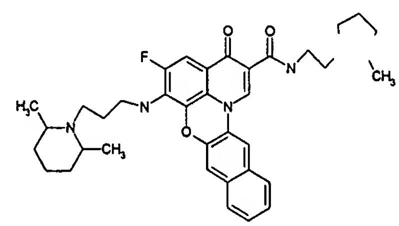
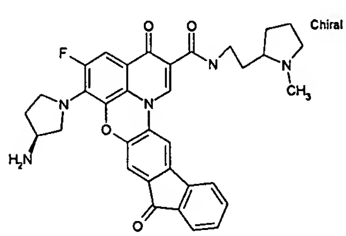
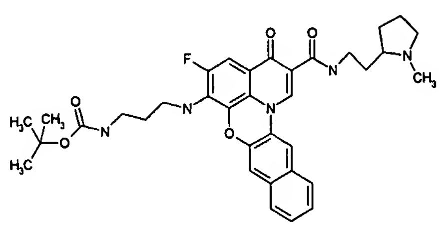
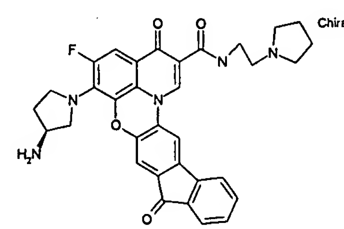

,

,

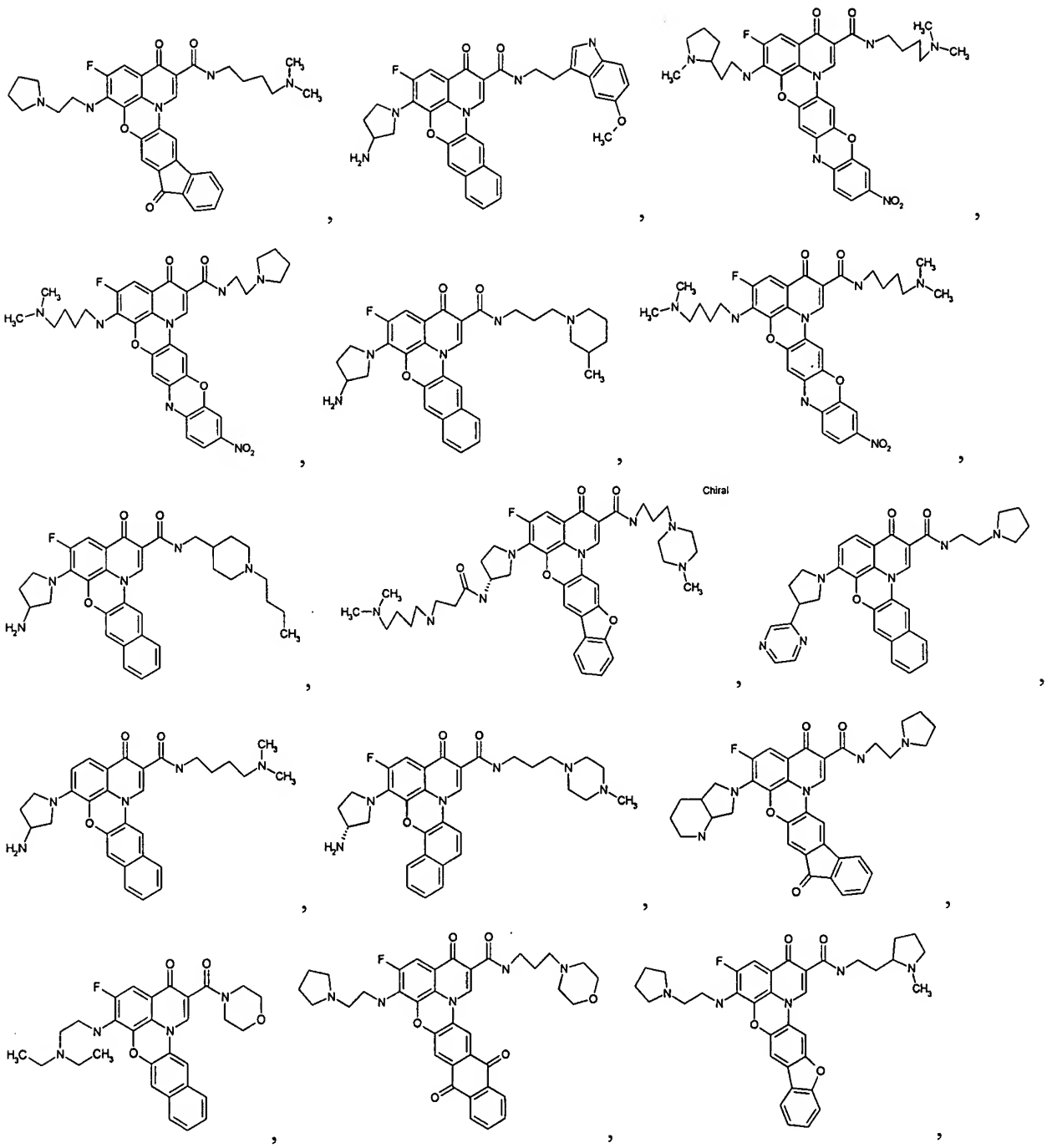
,

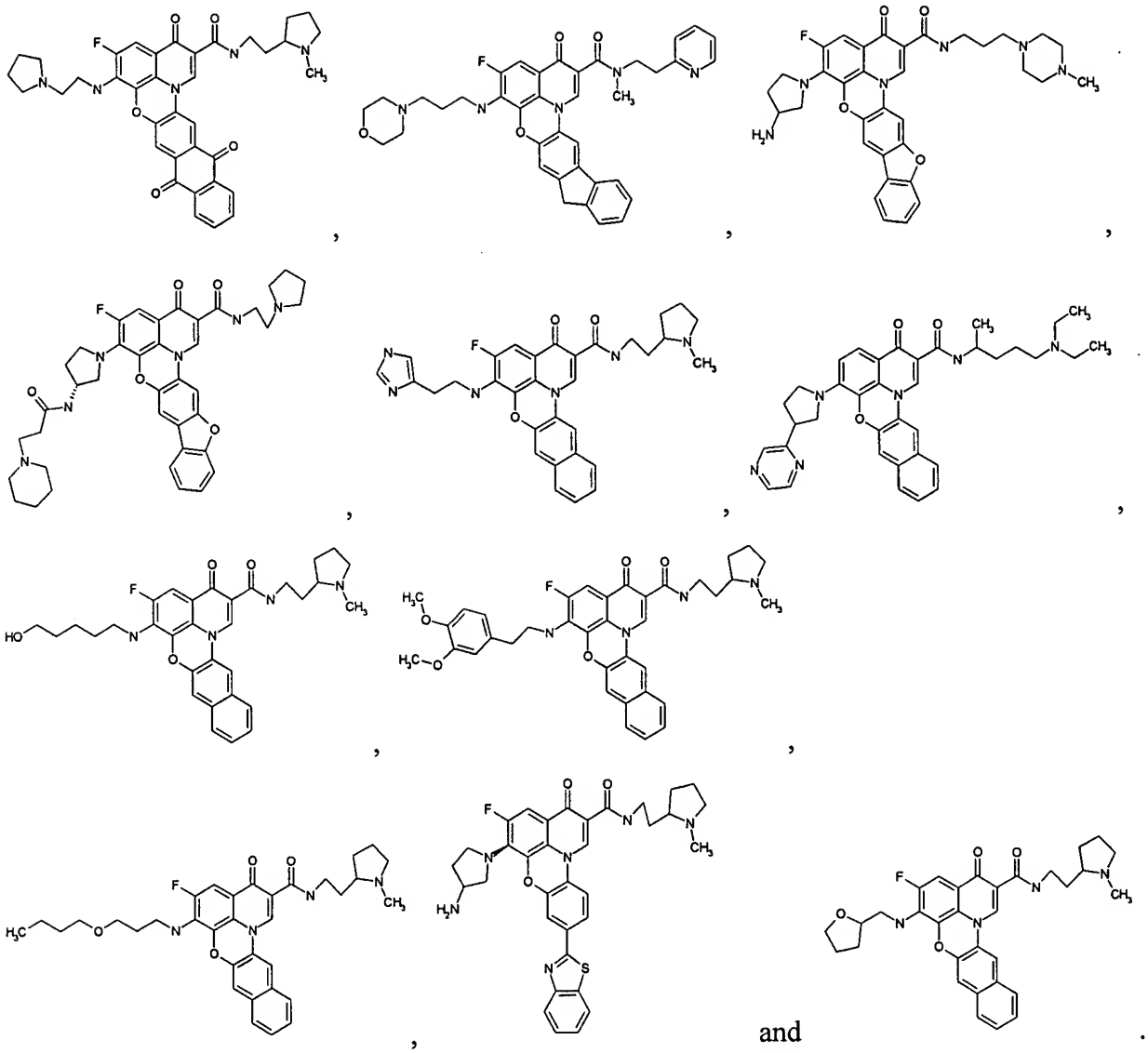
,


,

,

,

,

,

,

,

Chiral
,

,

,

,




 ,
 ,
 ,
 ,
 ,
 ,
 ,
 ,
 ,
 ,
 ,
 ,
 ,
 ,
 ,
 ,
 ,
 ,

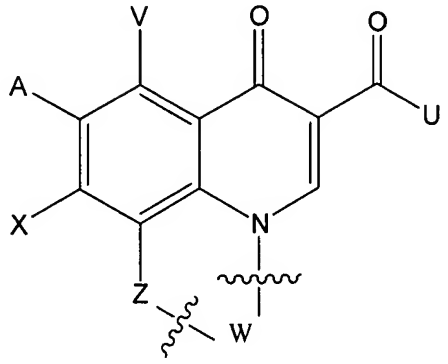

Chiral



47. (previously presented):. The compound of claim 1, wherein R is a C_{1-10} alkyl substituted with a 5-14 membered heterocyclic ring.

48. (previously presented): The compound of claim 47, wherein the heterocyclic ring is selected form the group consisting of pyrrolidine, imidazole, pyridine, morpholine, thiomorpholine, piperazine, piperidine and diazepine.

49. (previously presented): A compound having formula 1,



(1)

and pharmaceutically acceptable salts, esters and prodrugs thereof;

wherein V is H, halo, or NR^1R^2;

A is H, fluoro, or $NR^1{}_2$;

Z is O;

U is NR^1R^2;

X is OR^2, NR^1R^2, halo, azido, or SR^2;

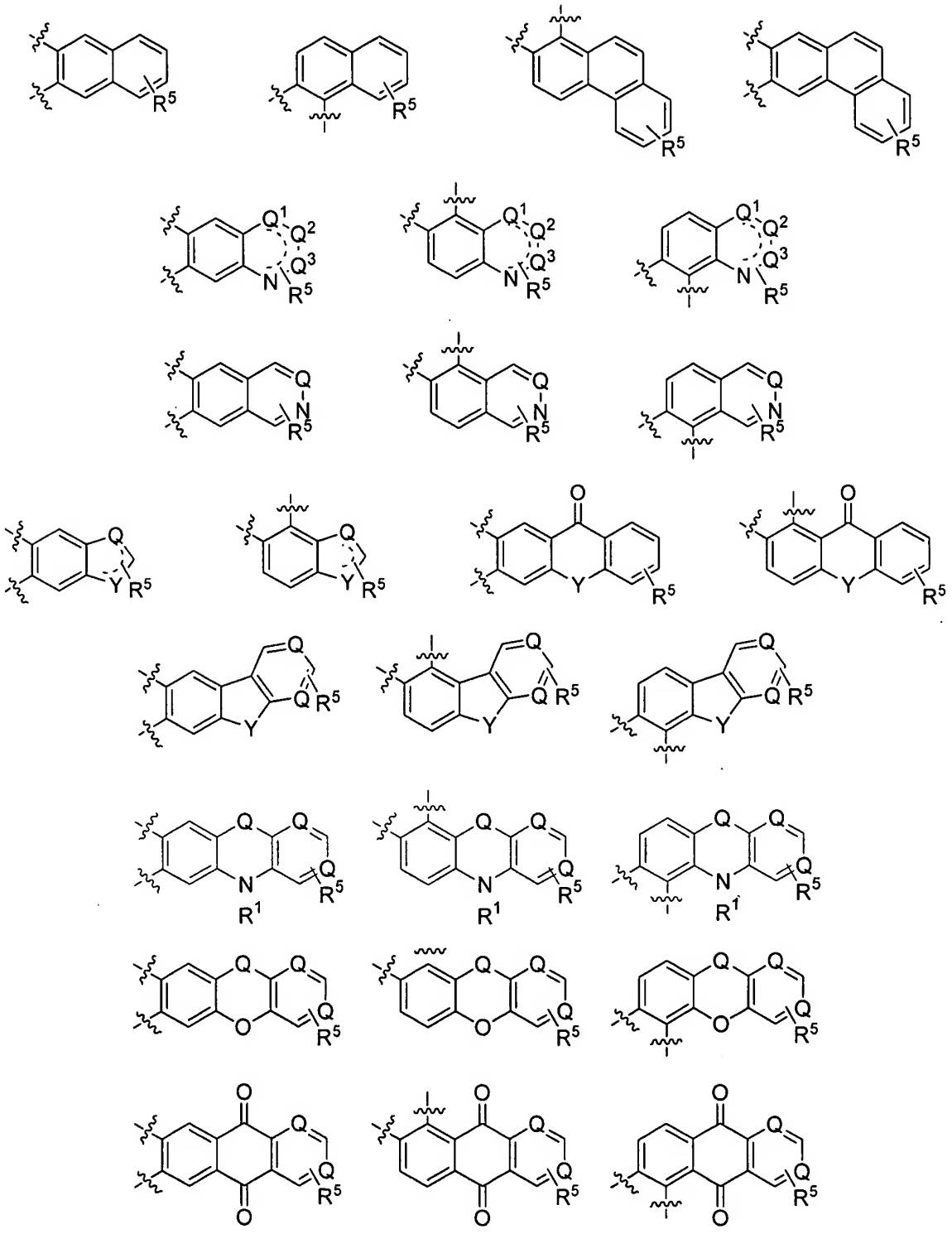
wherein R^1 and R^2 together with N in NR^1R^2 may form an optionally substituted 5-6 membered ring optionally containing one or more heteroatoms selected from N, O and S;

R is an optionally substituted heterocyclic ring, aryl or heteroaryl; a C_{1-10} alkyl substituted with a carbocyclic or heterocyclic ring, and optionally containing one or more non-adjacent heteroatoms selected from N, O, and S; or an optionally substituted C_{2-10} alkenyl;

R^1 is H or a C_{1-6} alkyl;

R^2 is H or a C_{1-10} alkyl or C_{2-10} alkenyl optionally containing one or more non-adjacent heteroatoms selected from N, O, and S, and optionally substituted with a carbocyclic or heterocyclic ring; or R^2 is an optionally substituted heterocyclic ring, aryl or heteroaryl;

W is selected from the group consisting of



wherein Q, Q^1, Q^2, and Q^3 are independently CH or N;

Y is independently O, CH, C=O or NR^1;

and R^5 is a substituent at any position on the fused ring; and is H, OR^2, C_{1-6} alkyl, C_{2-6} alkenyl, each optionally substituted by halo, or C=O; or two adjacent R^5 is linked to obtain a 5-6 membered substituted or unsubstituted carbocyclic or heterocyclic ring, optionally fused to an additional substituted or unsubstituted carbocyclic or heterocyclic ring;

wherein each optionally substituted moiety is substituted with one or more halo, OR^2, NR^1R^2, carbamate, C_{1-10} alkyl, C_{2-10} alkenyl, each optionally substituted by halo, C=O, aryl or one or more heteroatoms selected from N, O and S; or is substituted with an aryl, a carbocyclic or a heterocyclic ring.

50. (previously presented): The compound of claim 49, wherein A and X are independently halo.

51. (previously presented): The compound of claim 49, wherein said halo is fluoro.

52. (previously presented): The compound of claim 49, where V is H.

53. (previously presented): The compound of claim 49, wherein U and X are independently NR^1R^2.

54. (previously presented): The compound of claim 53, wherein R^1 is H and R^2 is a C_{1-10} alkyl optionally containing N, O or S, and optionally substituted with a C_{3-6} cycloalkyl, aryl or a 5-14 membered heterocyclic ring containing one or more N, O or S.

55. (previously presented): The compound of claim 54, wherein said 5-14 membered heterocyclic ring is selected from the group consisting of tetrahydrofuran, 1,3-dioxolane, 2,3-dihydrofuran, tetrahydropyran, benzofuran, isobenzofuran, 1,3-dihydro-isobenzofuran, isoxazole, 4,5-dihydroisoxazole, piperidine, pyrrolidine, pyrrolidin-2-one, pyrrole, pyridine, pyrimidine, octahydro-pyrrolo[3,4-*b*]pyridine, piperazine, pyrazine, morpholine, thiomorpholine, imidazole, imidazolidine-2,4-dione, benzimidazole, 1,3-dihydrobenzimidazol-2-one, indole, thiazole, benzothiazole, thiadiazole, thiophene, tetrahydro-thiophene 1,1-dioxide, diazepine,

triazole, guanidine, diazabicyclo[2.2.1]heptane, 2,5-diazabicyclo[2.2.1]heptane, and 2,3,4,4a,9,9a-hexahydro-1H-β-carboline.

56. (previously presented): The compound of claim 54, wherein R^1 is H and R^2 is an aryl or a 5-14 membered heterocyclic ring containing one or more N, O or S, each optionally substituted with an amino or another heterocyclic ring.

57. (previously presented): The compound of claim 56, wherein said 5-14 membered heterocyclic ring is selected from the group consisting of tetrahydrofuran, 1,3-dioxolane, 2,3-dihydrofuran, tetrahydropyran, benzofuran, isobenzofuran, 1,3-dihydro-isobenzofuran, isoxazole, 4,5-dihydroisoxazole, piperidine, pyrrolidine, pyrrolidin-2-one, pyrrole, pyridine, pyrimidine, octahydro-pyrrolo[3,4-b]pyridine, piperazine, pyrazine, morpholine, thiomorpholine, imidazole, imidazolidine-2,4-dione, benzimidazole, 1,3-dihydrobenzimidazol-2-one, indole, thiazole, benzothiazole, thiadiazole, thiophene, tetrahydro-thiophene 1,1-dioxide, diazepine, triazole, guanidine, diazabicyclo[2.2.1]heptane, 2,5-diazabicyclo[2.2.1]heptane, and 2,3,4,4a,9,9a-hexahydro-1H-β-carboline.

58. (previously presented): The compound of claim 53, wherein R^1 and R^2 together with N in NR^1R^2 form an optionally substituted 5-6 membered ring containing one or more N, O or S.

59. (previously presented): The compound of claim 58, where NR^1R^2 is pyrrolidine, imidazole, pyridine, morpholine, thiomorpholine, piperazine, piperidine or diazepine.

60. (previously presented): The compound of claim 49, wherein X is NR^1R^2, and R^1 and R^2 together with N form a substituted 5-6 membered ring containing one or more N, O or S.

61. (previously presented): The compound of claim 60, wherein X is optionally substituted with amino, carbamate, a C_{1-10} alkyl containing one or more non-adjacent N, O or S, and optionally substituted with a heterocyclic ring; aryl or a saturated or unsaturated heterocyclic ring, each of which is optionally substituted.

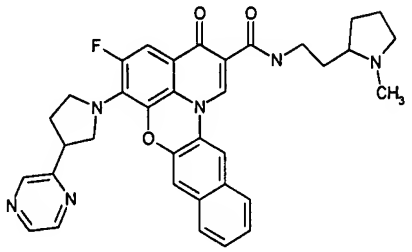
62. (previously presented): The compound of claim 61, wherein X is substituted with a heterocyclic ring selected from the group consisting of tetrahydrofuran, 1,3-dioxolane, 2,3-dihydrofuran, tetrahydropyran, benzofuran, isobenzofuran, 1,3-dihydro-isobenzofuran, isoxazole, 4,5-dihydroisoxazole, piperidine, pyrrolidine, pyrrolidin-2-one, pyrrole, pyridine, pyrimidine, octahydro-pyrrolo[3,4-*b*]pyridine, piperazine, pyrazine, morpholine, thiomorpholine, imidazole, imidazolidine-2,4-dione, benzimidazole, 1,3-dihydrobenzimidazol-2-one, indole, thiazole, benzothiazole, thiadiazole, thiophene, tetrahydro-thiophene 1,1-dioxide, diazepine, triazole, guanidine, diazabicyclo[2.2.1]heptane, 2,5-diazabicyclo[2.2.1]heptane, and 2,3,4,4a,9,9a-hexahydro-1H-β-carboline.

63. (previously presented): The compound of claim 60, wherein X is morpholine, thiomorpholine, imidazole, pyrrolidine, piperazine, pyridine or piperidine.

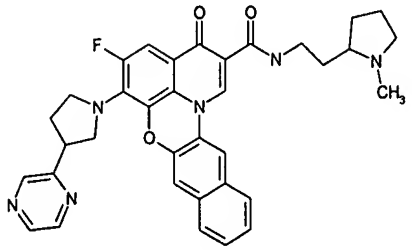
64. (previously presented): The compound of claim 63, wherein X is pyrrolidine.

65. (previously presented): A pharmaceutical composition comprising the compound of claim 49 and a pharmaceutically acceptable excipient.

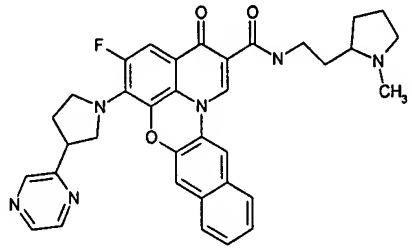
66. (previously presented): The compound of claim 1, wherein said compound is



67. (previously presented): The pharmaceutical composition of claim 28, wherein said compound is



68. (previously presented): The compound of claim 49, wherein said compound is



69. (currently amended): The pharmaceutical composition of claim [[68]] 65, wherein said compound is